

حمل الآن

مجاناً وحصرياً

المراجعة رقم (1)

اختبار شهر مارس



on Concept (3.1)

15

(5 marks)

3. When a piece of coal is burned, energy is produced.

(B) What happens if ...?

You put your hands near a lighted lamp.

(5 marks)

1. There is stored chemical energy inside the food we eat. ()

(B) Look at the following figures, then complete the following energy chain :



Figure (1)



Figure (2)

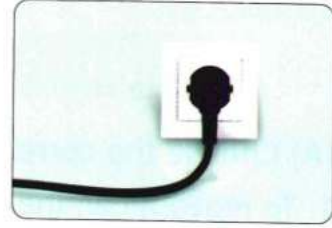


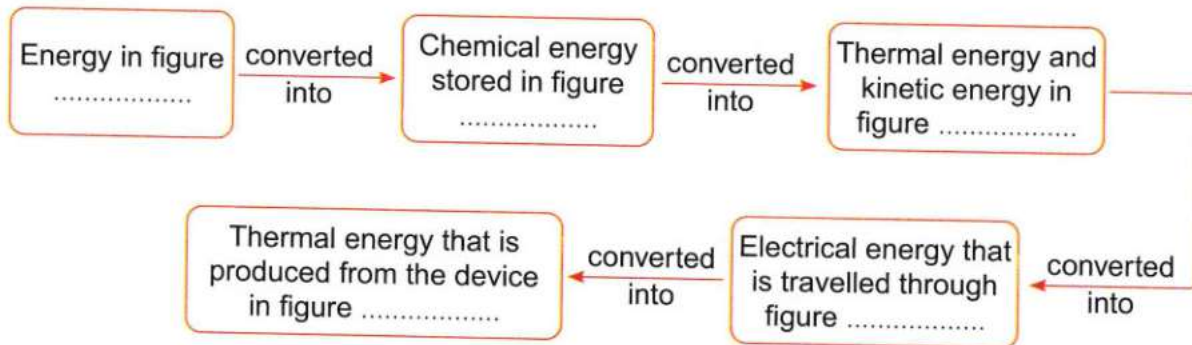
Figure (3)



Figure (4)



Figure (5)



3 (A) Correct the underlined words :

(5 marks)

1. Light energy is stored inside the battery of a mobile phone. (.....)
2. Toy cars depend on fuel as a source of electrical energy. (.....)
3. Light energy, thermal energy and chemical energy are produced when a mobile phone is used. (.....)
4. The solar energy produced from the moon can be converted into different forms of energy. (.....)

(B) Give a reason for the following :

There is an energy change when you press on the spring of soap dispenser.

.....

.....

on Concepts (3.1) & (3.2)

15

1 (A) Choose the correct answer :

(5 marks)

1. A form of biofuels which can be used in warming houses and cooking food is
 - a. wood.
 - b. wind.
 - c. water.
 - d. sand.
2. You feel warm when you rub your hands together, because energy converts into thermal energy.
 - a. kinetic
 - b. light
 - c. electrical
 - d. sound
3. All the following are from the harmful effects of acid rain, except
 - a. the death of trees.
 - b. the change in the chemical nature of soil.
 - c. the increase in the Earth's temperature.
 - d. the change in the chemical nature of lakes.
4. A form of fossil fuels that was formed from the decomposition of plant remains is
 - a. wind.
 - b. coal.
 - c. wood.
 - d. sand.

(B) Give a reason for the following :

A remote controlled toy car needs a battery to move from one place to another.

2 (A) Put (✓) or (X) :

(5 marks)

1. Grass and wood chips can be used to make a liquid biofuel. ()
2. When pedalling a bike, the chemical energy in your body changes into kinetic energy. ()
3. The movement of a turbine in the electric power station produces chemical energy. ()
4. Energy may be destroyed inside different devices. ()

(B) What happens if ...?

Pesticides mix with water of canals and rivers.

3 (A) Complete the following sentences :*(5 marks)*

1. The change of electrical energy into sound energy in the radio is an example that proves the law of
2. The generator in the electric power station changes energy into electrical energy.

(B) Compare between renewable resources and nonrenewable resources according to definition and examples :

P. O. C	Renewable resources	Nonrenewable resources
1. Definition :		
2. Examples :		

March Tests

Total mark

15

Model 1

1 (A) Write the scientific term of each of the following :

(5 marks)

1. They are fuels made from living organisms that can be planted such as plants. (.....)
2. Energy can neither be created nor destroyed, but only converted from one form of energy into another. (.....)
3. The wasted energy when using a mobile phone for a long time. (.....)
4. The device in the electric power station, that converts kinetic energy into electrical energy. (.....)

(B) Cross out the odd word :

Grass – Corn – Coal – Wood chips. (.....)

2 (A) Choose from column (B) what suits it in column (A) :

(5 marks)

(A)	(B)
1. Pesticide	a. it causes dissolving some rocks.
2. Global warming	b. it causes damage of tissues of the human respiratory system.
3. Smog	c. it is used in farms that leads to soil pollution.
4. Acid rain	d. it is rising in the Earth's temperature due to increasing the amount of carbon dioxide gas.
	e. it is a renewable energy resource.

1. 2. 3. 4.

(B) Give a reason for the following :

Sound energy and thermal energy are considered as wasted energy in the blender.

.....

3 (A) Put (✓) or (X) :

(5 marks)

1. Most of energy chains start with the energy of the moon. ()
2. Mars rover Curiosity cannot move without electrical energy. ()
3. There is a stored chemical energy inside the food we eat. ()
4. Extreme cooling under the Earth's surface helps in the formation of oil. ()

(B) What happens to ...?

The change of energy when you burn a piece of wood.

.....

Model 2

1 (A) Choose the correct answer :

(5 marks)

1. Which form of energy is not an output energy when a hair dryer is used ?

a. Kinetic energy.

b. Electrical energy.

c. Thermal energy.

d. Sound energy.
2. When you turn on a light bulb, the electrical energy travels through until reaching the bulb.

a. wires

b. glass

c. wood

d. plastic
3. All the following factors play an important role in the formation of fossil fuels, except

a. extreme pressure.

b. extreme heat.

c. strong wind.

d. rocks and sediment.
4. Which sentence shows the correct order of energy changes in a flashlight ?

a. Chemical → electrical → light.

b. Chemical → light → electrical.

c. Electrical → chemical → light.

d. Light → chemical → electrical.

(B) Give a reason for the following :

Although water is renewable energy resource, we must conserve it.

2 (A) Complete the following table :

(5 marks)

	Gasoline	Wood
- Type of fuel :	 (1)	 (2)
- Type of energy resource :	 (3)	 (4)

(B) What happens if ...?

You shake a small bell with your hand. (according to the change of energy)

3 (A) Correct the underlined words :

(5 marks)

1. When pedalling a bike, the electrical energy in your body is converted into kinetic energy. (.....)
2. The energy source in a toy car is the fuel. (.....)
3. We can use some animals to make a liquid biofuel. (.....)
4. The input energy in a soap dispenser is the thermal energy. (.....)

(B) Mention two negative impacts on the environment when the amount of carbon dioxide gas increases in air.

.....

Model 3

1 (A) Put (✓) or (X) :

(5 marks)

1. Any form of fossil fuels must be formed under the Earth's surface. ()
2. Energy can be destroyed inside some devices. ()
3. When burning fossil fuels increases, the temperature on Earth decreases. ()
4. The produced sound energy helps the hair dryer to do its function. ()

(B) Give a reason for the following :

Generators are important in electric power stations.

.....

2 (A) Complete the following sentences :

(5 marks)

1. Burning coal and oil produces gas, which combines with in air forming acid rains.
2. The electric lamp converts energy into light energy and energy.
3. The input energy when recharging a mobile phone is energy which is stored in the form of energy inside the phone battery.
4. Generators in electric power stations change energy into energy.

(B) Define :

1. Energy chain :
2. Fuel :

3 (A) Write the scientific term of each of the following :

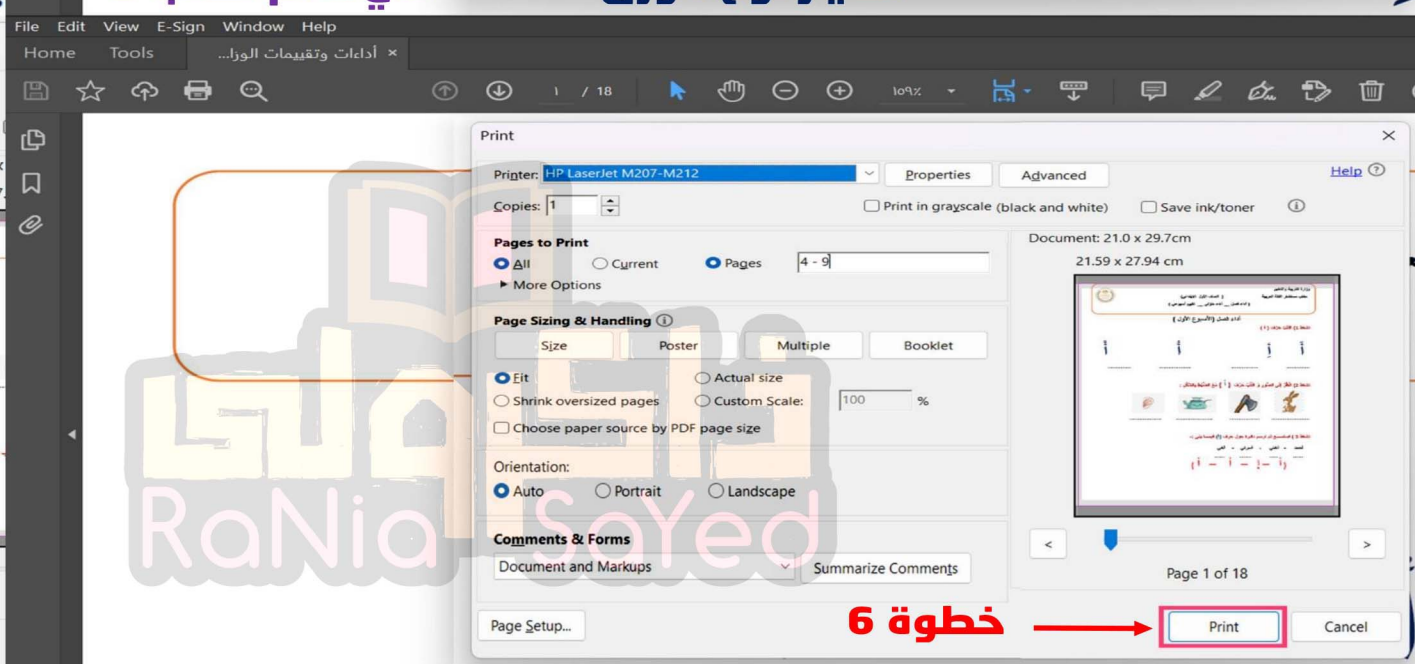
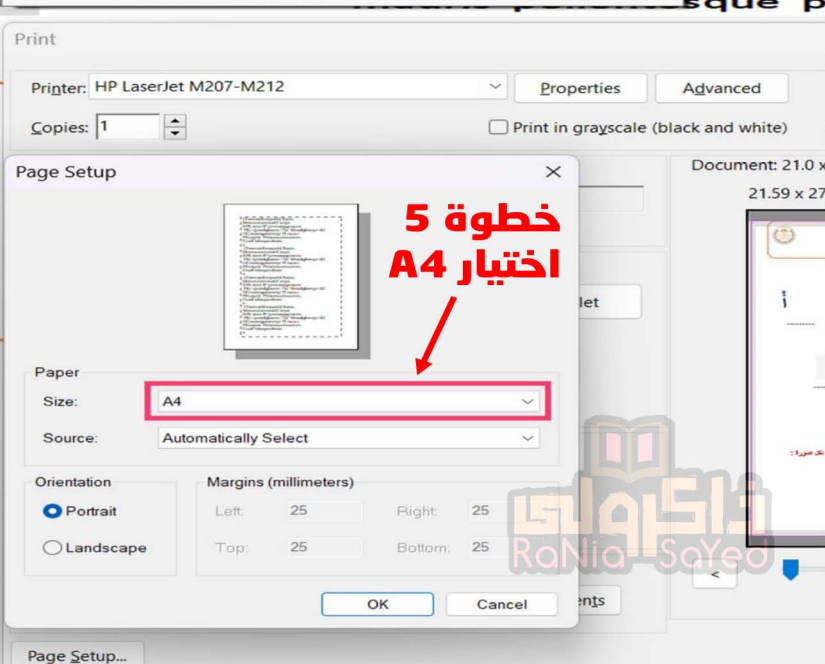
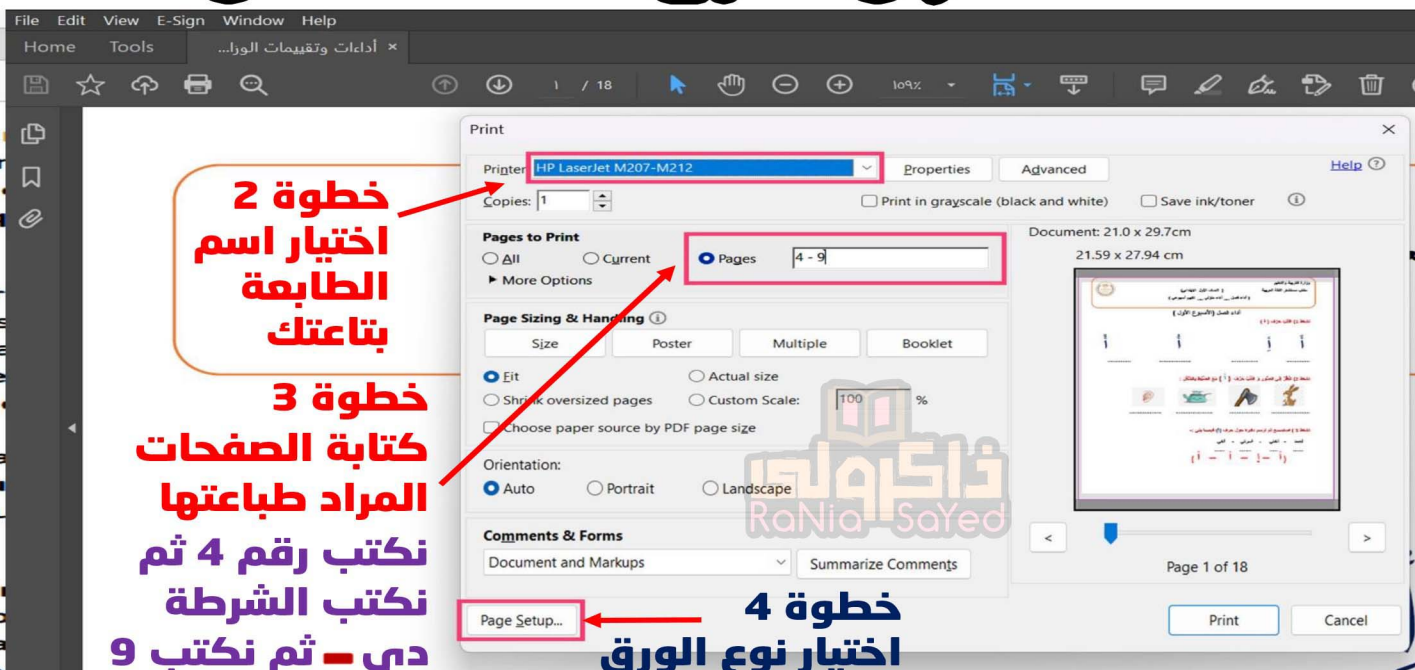
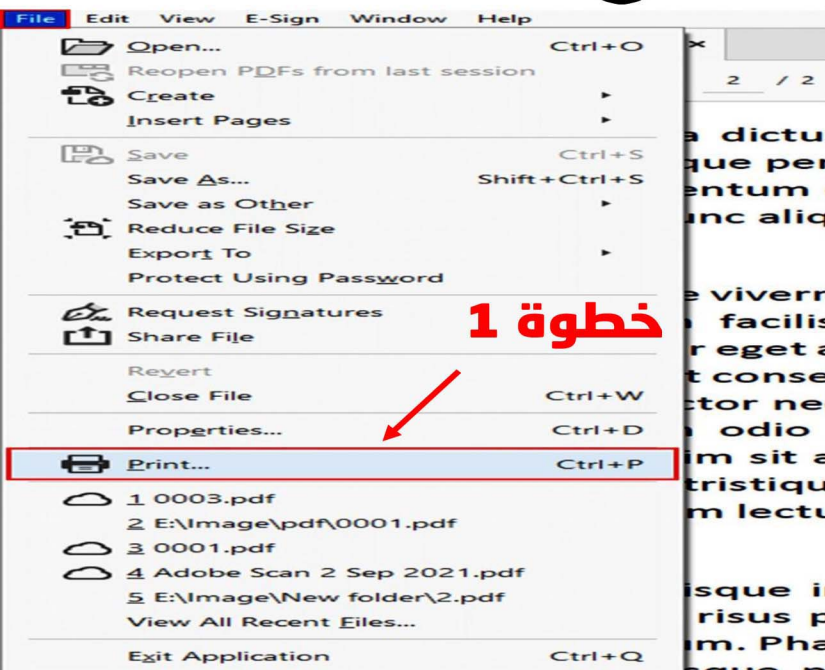
(5 marks)

1. The main source of energy for most forms of energies on Earth. (.....)
2. Natural resources of energy, that take a short period of time to be renewed. (.....)

(B) Compare between biofuel and fossil fuel according to definition and examples :

P. O. C	Biofuel	Fossil fuel
1. Definition :		
2. Examples :		

كيفية طباعة صفحات معينة من ملف معين مثلا ازاي نطبع الصفحات من صفحة 4 الى صفحة 9



حمل الآن

مجاناً وحصرياً

المراجعة رقم (2)

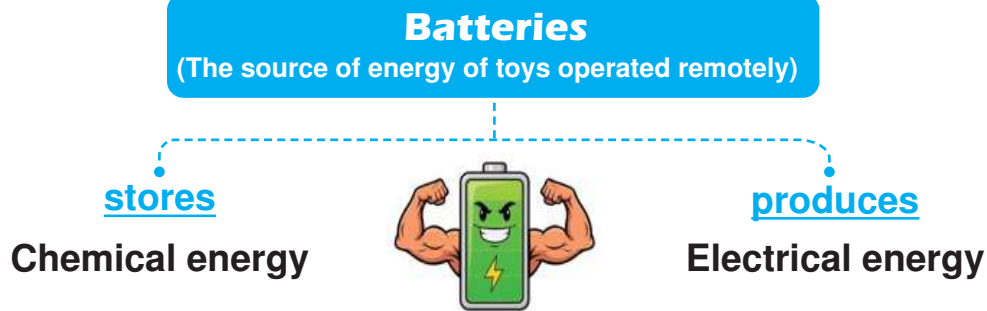
اختبار شهر مارس



Concept 3.1 Energy and Devices

1 Toys operated remotely:

- » Many toys may be operated remotely (from a distance), such as:
 - Cars • Trucks • Boats • Planes • Robots
- » These toys need a source of energy such as a battery to:
 - move (be operated).
 - do different tasks.



- » If the battery runs out, the toy car will stop moving, so we can **replace** it or **recharge** it.

2 Curiosity Rover:

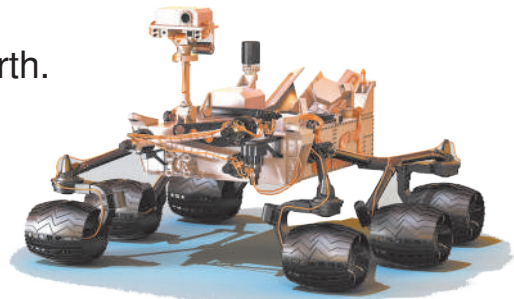
- The distance between Earth and Mars is **54 million kilometers**.
- Spacecraft takes **6 months or more** to reach Mars.
- Missions to Mars don't include **people**.
- Missions to Mars depend on **robots** and **vehicles**.



Curiosity Rover

(It is a most famous robotic vehicle that explores Mars)

- It is operated remotely from a distance.
- It is too far from a store or charger plug on Earth.
- **It depends on:**
 1. Solar panels.
(Solar panels convert solar energy into electrical energies)
 2. Batteries charged by solar energy.



3 Devices (Machines):

- People depend on devices (machines) to make their lives easier.
- In devices, energy can be converted from one form to another

Input Energy

It is the energy **consumed in** the device.

Output Energy

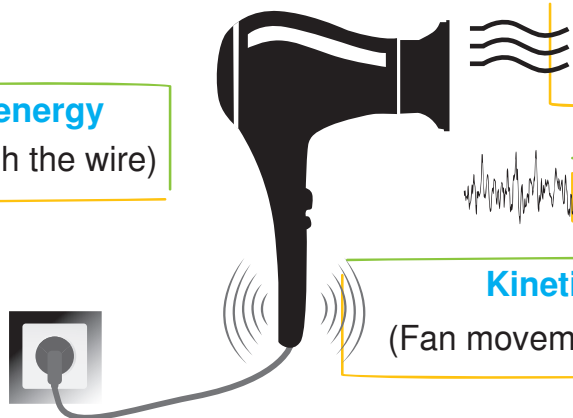
It is the energy **produced from** the device.

- Some of the energy produced doesn't help the device do its function, and it is called "lost energy".

Hair Dryer **Function: Drying hair**

Input Energy

Electrical energy
(Moving through the wire)



Output Energies

Thermal energy
(To dry hair)

Sound energy (Noise)

Kinetic energy
(Fan movement and air flow)

Thermal energy is useful energy in hair dryer

Because it helps the device to do its function.

Sound energy (Noise) is lost energy in hair dryer

Because it doesn't help the device to do its function.

Law of Conservation of Energy

Energy can neither be created nor destroyed; but it is only converted from one form of energy to another.

» The table shows the energy transformation in some devices in our homes.

Device	Input Energy = Used energy = Consumed energy	Output Energy = produced energy = Outcoming energy
• Hairdryer	Electrical energy	Thermal energy Kinetic energy Sound energy
• Washing machine • Vacuum cleaner • Blender (Mixer)	Electrical energy	Kinetic energy Sound energy
• Television • Mobile phone	Electrical energy	Light energy Sound energy
• Electric fan	Electrical energy	Kinetic energy
• Electric iron • Electric heater • Kettle (Boiler)	Electrical energy	Thermal energy
• Radio • Door bell	Electrical energy	Sound energy
• Hand bell • Drum • Guitar	Kinetic energy	Sound energy
• Electric bulb (Lamp)	Electrical energy	Light energy Thermal energy
• Flashlight	Chemical energy	Light energy Thermal energy
• Clock	Chemical energy	Kinetic energy
• Soap dispenser	Potential energy (Stored in the spring)	Kinetic energy (Movement of the soap upward)
• Toy car (operated remotely)	Chemical energy	Kinetic energy Sound energy
• Toy car (operated by spring)	Potential energy (Stored in the spring)	Kinetic energy

When operating some devices for a long time, thermal energy (heat) is produced as a wasted (lost) energy.

4 Energy transformations in some activities:

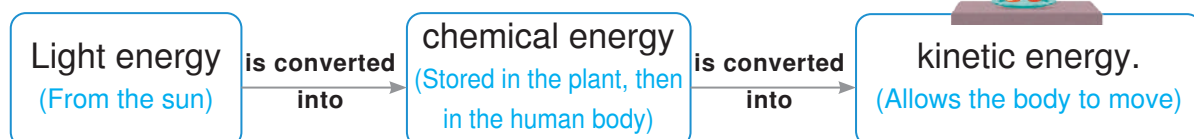
Activity	Input Energy	Output Energy
Rubbing hands (Friction)	Kinetic energy	Thermal energy
Clapping hands	Kinetic energy	Sound energy
Walking - Running	Chemical energy	Kinetic energy
Burning wood	Chemical energy	Thermal energy

5 Energy chains:

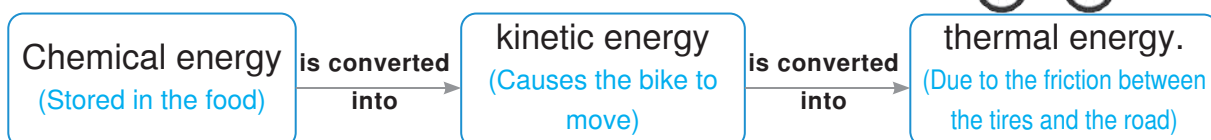
- The energy chain is the path of energy from the sun to different devices.
- Each energy chain starts with the **sun**.
- The sun is the **main source** of energy on Earth.

Examples of Energy Chains

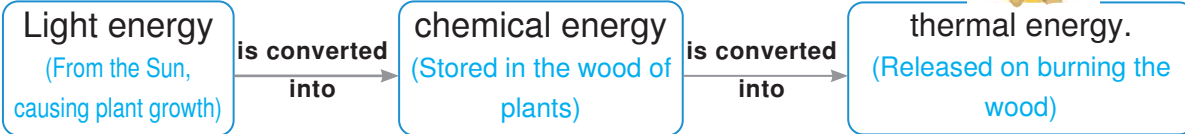
① Energy chain when eating food:



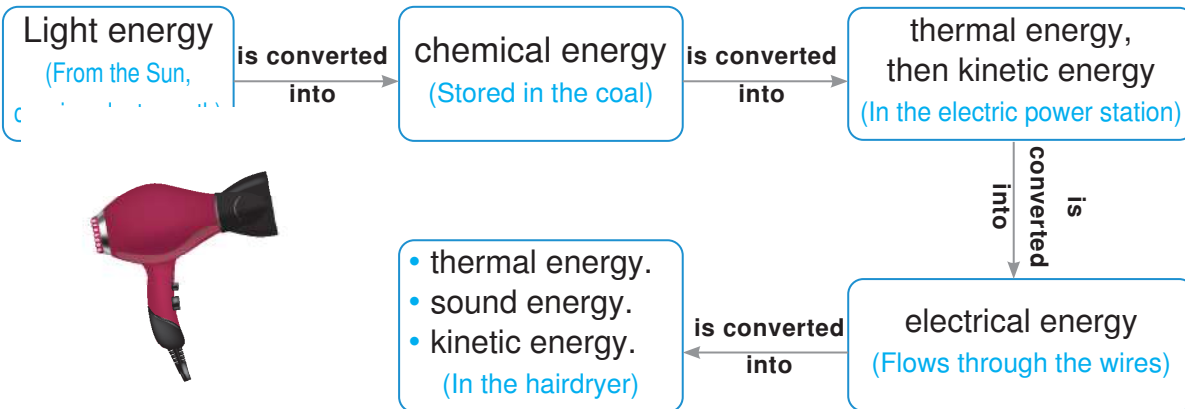
② Energy chain while riding a bike:



③ Energy chain when heating a pot of water over a fire:

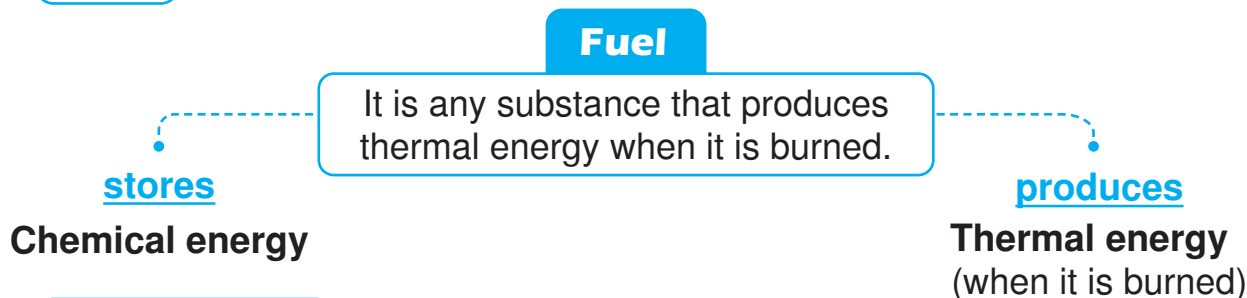


④ Energy chain when using the hairdryer:



Concept 3.2 About Fuel

1 Fuel:



2 Types of fuel:

- They are two types of fuel on Earth, which are:



1 Biofuel

- They are fuels that are made from living organisms that can be planted.

- Wood.
(The oldest fuel used by ancient people)
- Charcoal
(It is made from wood)
- Liquid fuel
(It is formed corn, grass, and wood chips)

Examples

- Coal
(Decomposition of old trees)
- Oil and Natural gas
(Decomposition of sea animals)
- Gasoline
(It is made from oil)



2 Fossil Fuel

- They are fuels that were formed from the decomposition of old animals and plants.

Give a reason for:

- Biofuels are renewable resources of energy
Because they can be renewed as plants grow.
- Fossil fuels are nonrenewable resources of energy
Because they can't be renewed easily after they are used.

Disadvantages

- To get wood, it requires cutting down trees with a fast rate, which may lead to deforestation.
- Burning fossil fuel produces carbon dioxide gas, which causes:
 - 1. Air pollution
 - 2. Acid rain
 - 3. Global warming

3 Uses of fuel:

- Humans depend on fuel as a resource of energy in their daily lives, such as in:

Cooking food



Natural gas
Coal Wood

Warming houses



Coal
Wood

Operating cars



Gasoline
Natural gas

Generating Electricity



Coal Oil
Natural gas

4 Disadvantages of burning fossil fuel:

- Burning coal and oil, produces carbon dioxide gas, which causes:

Acid Rain:

How it is formed:

- Carbon dioxide gas combines with water in the air to form **acid rain**.

Its disadvantages:

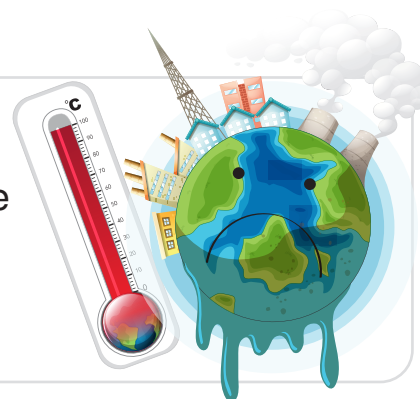
- It changes the chemical structure of soil causing death of trees.
- It changes the chemical structure of lakes causing death of fish.
- Dissolving some rocks, and bricks of buildings.



Global Warming:

How it is formed:

- Carbon dioxide gas forms a layer in the atmosphere that traps heat on the Earth, causing a slow rise in the Earth's temperature.

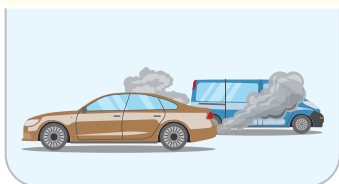


5 Pollution in Big cities:

Reasons of Pollution in Big Cities

1

Burning fuel produces smog that pollutes the air.



2

Pesticides used on farms are carried into canals and rivers by rainfall, leading to **soil** and **water** pollution.



3

Using chemicals in factories pollutes the **air**, **water**, and **soil**.



Effects of Air Pollution on Humans' Health

Smog from cars and factories in big cities causes:

- 1 Irritation of humans' **eyes** and **lungs**.
- 2 Damage of the **respiratory system tissues**.



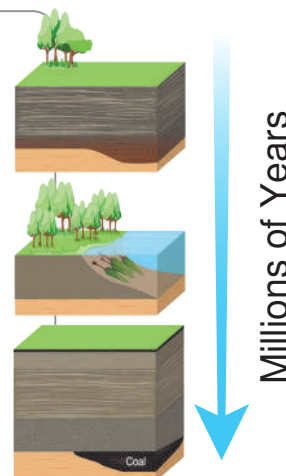
6 Origin of fuel:

- The sun is considered the main source of all forms of fuel on Earth.

Formation of Coal

Over many millions of years ago:

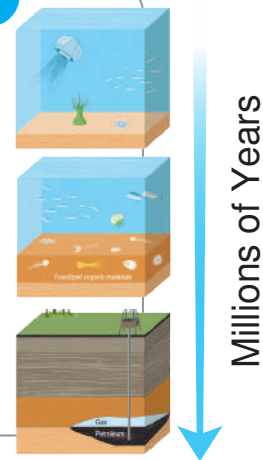
- 1 Large areas of Earth were covered in swamps, with a lot of plants growing nearby.
- 2 When those plants died, their remains were covered with mud and rocks.
- 3 Those remains turned into coal due to the effect of heat and pressure.



Formation of Oil or Natural Gas

Over many millions of years ago:

- 1 Marine organisms died, their remains settled on the sea floor.
- 2 Layers of sediments and rocks covered the remains.
- 3 Over time, those remains were exposed to extreme heat and pressure.
- 4 The remains were converted into oil or natural gas.



7 Water and oil:

- Water and oil are two different natural resources that are used by human daily.

Water

Oil

Its type

Renewable energy resource

They are natural resources that can be replaced soon after they are used.

Nonrenewable energy resource

They are natural resources that are used faster than they can be replaced.

Its use

Water is used to generate hydroelectricity.

Water is used to generate electricity.

How to conserve them?

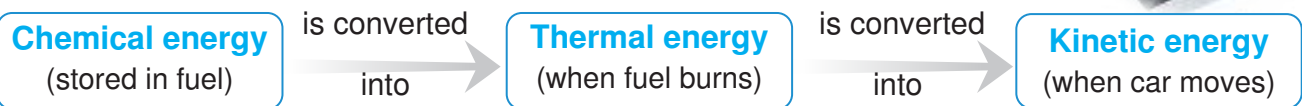
We can conserve water by:

- 1 Growing plants that don't require watering.
- 2 Avoid wasting or polluting water.

We can conserve oil by:

- 1 Driving less private vehicles.
- 2 Taking public transportations.

8 Gasoline and cars:



- If the speed of driver increases, the amount of used fuel increases.
- If a car runs out of fuel, it will stop moving.

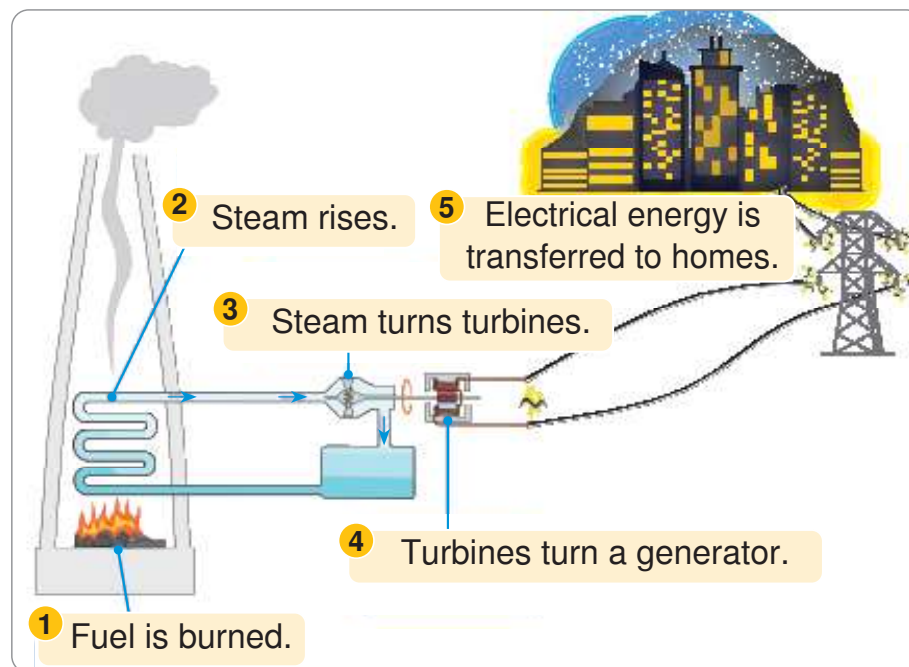
Gasoline pointer (fuel indicator)

Function: It helps the driver to check the amount of gasoline in the car's tank.



- On going on a long trip by car, we must check the **gasoline pointer**.
- If the gasoline pointer is close to zero, we must fill the car's tank from the nearest **gas station**.

9 Generating Electricity:



1 Fuel is burned.

- When fuel (coal, oil, or natural gas) burns, it produces thermal energy.

2 Steam rises.

- This thermal energy is used to heat water to produce steam.

3 Steam turns turbines.

- The steam is directed to tubes to turn turbines.

4 Turbines turn a generator.

- Turbines make the generator spin to convert kinetic energy into electrical energy.

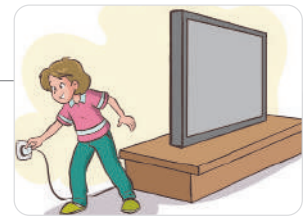
5 Electrical energy is transferred to homes.

- Electrical energy travels through wires to homes and factories.

How do we conserve electricity?



- 1 Turning off the lights we don't need.
- 2 Unplugging unused electrical devices.



Concept 3.3 Renewable Energy Resources

Renewable resources of energy

They are natural resources that are replaced (renewed) at a rate faster than they are consumed.

1 Old machines:

- In the past, people needed **machines** to make their lives easier.

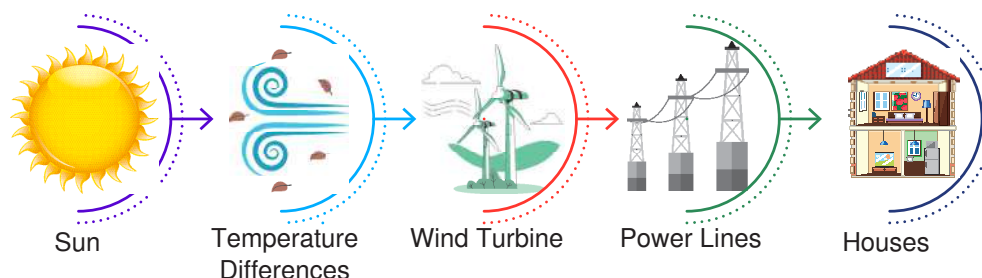
1 Windmill	2 Watermill
	
Way of Working	
1 The wind's kinetic energy moves the mill's blades. 2 The kinetic energy is then transferred to other parts of the mill.	1 The water's kinetic energy moves the mill's blades. 2 The kinetic energy is then transferred to other parts of the mill.
Importance	
• They are used to crush (grind) grains and make flour.	
Advantages • Low cost • Renewable energy resources	
Disadvantages • Sometimes the wind doesn't blow, so it can't do its main job. • Sometimes, the water supply may dry up, so it can't do its main job.	

2 Wind energy:

Modern turbines are used now instead of old windmills.

1 Modern Wind Turbines	2 Old Windmills
 • Generating electricity	 • Grinding the grains to make flour
Differences • They are taller than windmills. • They have fewer blades than windmills. • The blades have no openings.	
• They are shorter than wind turbines. • They have more blades than wind turbines. • The blades have openings.	
Similarity • They depend on the kinetic energy of the wind to be operated.	

Generating Electricity Using the Wind:



1 Solar energy causes the air to move and the wind to blow.

2 The kinetic energy of the **wind** rotates the blades of the **wind turbines** that are used to spin the generators.

3 The **generators** change kinetic energy into electrical energy.

4 Electricity is transferred through big wires towards cities.

3 Water energy:

Hydroelectricity (Hydroelectric energy)

It is a type of electrical energy generated by water turbines in dams.

Control the flow of water.

Dams are built on rivers to:

Increase the potential energy of water.

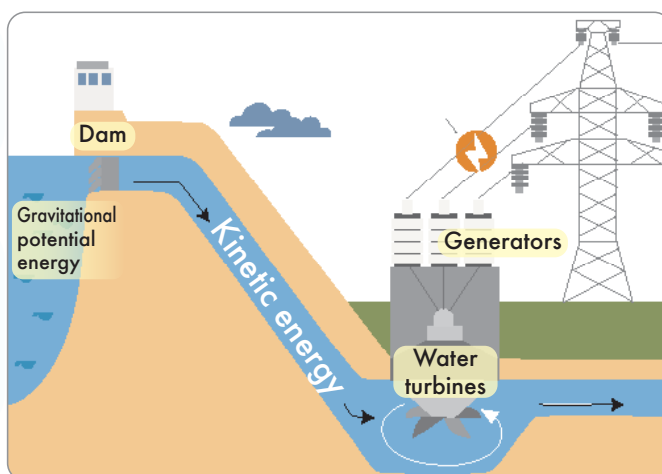
How can water be used to generate electricity

1 A hydroelectric dam holds back the flow of water to increase its **potential energy**.

2 As water flows downhill by the effect of **gravitational force**, its **potential energy** is converted into **kinetic energy**.

3 The **kinetic energy** transfers from the flowing water to the water turbines, causing them to rotate, to operate generators to generate **electricity**.

4 Electricity is transferred to cities through long electric wires.



P.O.C	 1 Wind Turbines	 2 Water Turbines
Difference	They are placed in windy places.	They are placed in places where dams are built on rivers and waterfalls.
Similarities	- Both of them are renewable resources. - Both of them use kinetic energy to turn turbines. - Both of them generate electricity.	

3 Solar energy:

It is the main source of all kinds of energies on Earth.

The sun provides us with **light** and **heat**.



The sunrays have a kind of energy called **radiant energy (radiation)**.

The energy received from the sun is called **solar energy**.

Uses of Solar Energy

- We can use solar energy as a source of **thermal energy**.

1

Greenhouses



Importance:

- They help farmers plant crops that grow in **warm climate**.

How does it work?

- A greenhouse allows the entry of **radiant energy**.
- Radiant energy** is changed into **thermal energy** inside it.
- Thermal energy warms the inside of the greenhouse.

2 Warming



a Warming our bodies:

- When exposing yourself to the sun, you feel warm.

b Warming houses:

- By placing large windows on the walls that face the sun.

3 Concave mirrors



Concave mirrors are used in cooking food, where:

- They **collect** and **focus** sunlight on a metal pot to cook the food inside it.

4 Solar water heater



Structure: • It contains panels made of **black pipes**.

Location: • It can be placed on the roof of a house.

How does it work?

- As water passes through the pipes, it heats up.
- The heated water is stored in a water tank to be used later.

Solar Panels

Structure	• They consist of a large number of small solar cells.
Idea	• Solar cells capture the radiant energy coming from the sun and turn it directly into electricity.
Size	• Some are very small to supply one light bulb only with energy. • Others are very large to supply buildings or cities with energy.
Uses	Most solar panels are used to generate electricity to: 1 Light houses and streets. 2 Operate electric devices. 3 Recharge batteries of solar-cell calculators. 4 Power irrigation equipment in some villages.

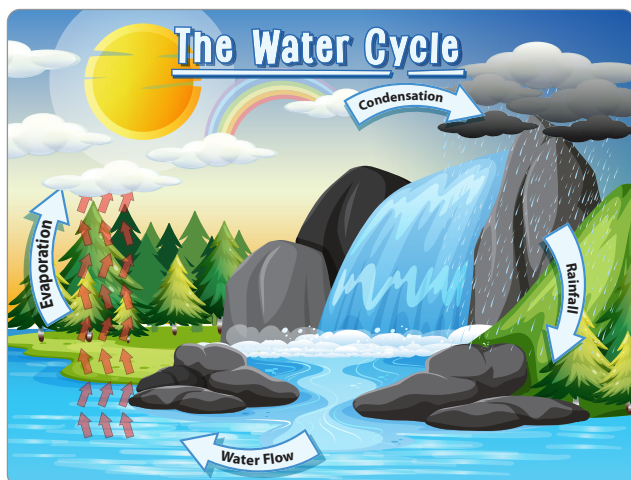
5 Water energy:

» The river's water is a renewable energy resource that isn't immediately renewed to its source; this occurs through a process called **water cycle**.

How does the water cycle occur on Earth?

» The river's water flows into other water bodies and **evaporates** by the heat of the sun, then **condenses** forming clouds.

» When rain falls from these clouds, the water returns to the river.



Evaporation:

It is the process in which water changes into water vapor.

Condensation:

It is the process in which water vapor changes into water.

1 Complete the following sentences:

1. The batteries we put inside the toy car are considered a
2. The missions of Mars depend on and
3. The stored energy in the food we eat is energy.
4. The main source of energy on the Earth's surface is
5. The flow of energy from the Sun until it reaches us is known as
6. The energies produced by the hair dryer are,
....., and
7. A plant transforms the energy of the Sun into the
..... energy stored in sugar.
8. When wood is burned, it releases
9. The energy coming from a power plant comes through burning
..... and
10. In the electrical bulb, the energy is converted into light energy.
11. In plants, the energy is converted into energy.
12. The output energies in electric bulbs are and energies.
13. In the toy car that is operated by a battery, energy is
converted into energy.
14. When you push on the bike pedals with your legs,
energy is converted into energy.
15. Energy cannot be nor
16. When you rub your hands, energy is converted into energy.
17. In a cell phone, energy changes to other types of energy.
18. In the car that is operated by a spring, energy is converted
into energy.
19. During running, energy is converted into energy.
20. In a radio, energy is converted into energy.
21. The output energy in an electric fan is energy.



2 Put (✓) or (X):

1. The spacecraft takes about five months, usually longer to reach Mars. ()
2. The solar energy is a clean source of energy. ()
3. The energy stored in a battery is chemical energy. ()
4. Curiosity Rover is used to explore the moon. ()
5. Mars is located a few kilometers away from Earth. ()
6. The distance between Earth and Mars is about 54 million km. ()
7. Energy can be converted into another form. ()
8. The toy car needs a source of energy to be operated. ()
9. The energy stored in a soap dispenser is potential energy. ()
10. The energy produced from the Sun is light energy only. ()
11. The electric bulb produces light energy only. ()
12. In the electric bell, electrical energy is changed into sound energy. ()
13. The energy stored in food is chemical energy. ()
14. The energy stored in the spring is kinetic energy. ()
15. Energy cannot be created nor destroyed. ()
16. Thermal energy is the only energy produced in the hair dryer. ()
17. In the electric iron, electrical energy is converted into thermal energy. ()
18. In the cell phone, electrical energy is stored in the battery. ()

3 Write the scientific term:

1. It is the main source of energy on the Earth's surface. (.....)
2. It is the path that shows the energy flow from its source to the device.
(.....)
3. It is the pathway from the input to the output energy. (.....)
4. It is the energy stored inside a tree. (.....)
5. Energy cannot be created nor destroyed. (.....)

4 Give reasons for:

1. There is a change in energy when burning wood.

.....

.....





2. The body has energy inside it.

3. The Sun is considered the main source of energy on the Earth's surface.

4. When you push on the bike pedals with your legs, heat energy is produced.

5. You feel heat when you hold your hands near a light bulb.

6. Energy can change forms, but it never disappears.

5 What happens when:

1. The hair dryer is operated?

2. You turn on an electric iron?

3. The electric heater is operated?

4. You hold your hands near a light bulb?

5. You push on the bike pedals?

6. Coal is burned?



6 Answer the following questions:

1 What is meant by:

a. Law of conservation energy:

b. Energy chain:

Explain the function of the Curiosity Rover

2 Explain the function of the Curiosity Rover.

3 Show the energy pathway from input to output in the following devices:

a. Electric heater

b. TV

c. Radio

d. Washing machine

Device	Input energy	Output energy
a. Electric heater		
b. TV		
c. Radio		
d. Washing machine		

4 Show the energy chain in the hair dryer:



1 Complete the following sentences:

1. Cars and trucks need to move.
2. Fuel is used in and
3. Fuel is
4. By burning fuels, is released.
5. The primary and main source of fuels is
6. The types of fuels include and
7. and are from the nonrenewable sources of energy.
8. and can be used to make a liquid fuel.
9. is from the renewable fuels.
10. The remains of plants and animals are transformed into coal by the and of the Earth.
11. has a variety of negative impacts on the environment.
12. Oil and water are natural resources that humans can use to
13. Although water is a resource of energy, we must not or it.
14. Oil is formed as a result of the
.....
15. The transforms kinetic energy into electrical energy.
16. Electricity is generated in the
17. We can use and to generate electricity.
18. Burning fuels for energy can produce
19. The smog from automobiles causes
20. The smog is full of that we breathe in.
21. When we burn fossil fuels, gas is formed.
22. Examples of fossil fuels are and
23. Carbon dioxide form with water.
24. Fuels can either be classified as





25. The solution to stop acidic rains and global warming is to
26. Oil and coal are from fuels.
27. Solar energy and wind are energy resources.
28. Acidic rains cause the pollution of

2 Put (✓) or (X):

1. The primary and main source of fuels is the moon. ()
2. Fossil fuels are from the renewable sources of energy. ()
3. Wind is a nonrenewable resource of energy. ()
4. Cars and trucks don't need fuels to move. ()
5. Fossil fuels can be used only in generating electricity. ()
6. The generator transforms solar energy into electrical energy. ()
7. Natural gas and coal are used in cooking food. ()
8. Liquid fuels were formed from the remains of plants and animals that lived millions of years ago. ()
9. Electricity has an important role in our lives. ()
10. Hydropower is a clean energy resource. ()
11. Hydropower is a nonrenewable resource of energy. ()
12. A generator transforms electrical energy into kinetic energy. ()
13. Fossil fuels are important in generating electricity. ()
14. Heat is the only factor that affects the remains of living things to convert them into fossil fuels. ()
15. Fossil fuels are from renewable energy resources. ()
16. Water is from nonrenewable energy resources. ()
17. Fossil fuels have negative impacts on the environment. ()
18. Wind causes global warming or climate change. ()
19. Oxygen combines with water vapor in the atmosphere and forms acidic rains. ()
20. Fossil fuels are used in electric generation. ()
21. Nitrogen is the cause of global warming. ()





22. Renewable energy resources pollute the environment. ()
23. Oxygen gas is formed by burning fossil fuels. ()

3 Write the scientific term:

1. It is a substance that releases thermal energy when it is burned. ()
2. It is the natural material that is used faster than it can be replaced. ()
3. It is the natural material that can be renewed soon after it is used. ()
4. They are fuels that were formed from the remains of ancient plants and animals. ()
5. They are materials that formed as a result of the decomposition of sea creatures. ()
6. They are fuels that are made from living things that can be planted. ()
7. It is the rise in the temperatures of Earth. ()
8. They are rains formed by the combination of carbon dioxide with water vapor of the air. ()
9. It is the increase of carbon dioxide in the air. ()

4 Define the following:

1. Fuels

.....

2. Biofuels

.....

3. Fossil fuels

.....

.....

4. Oil

.....

.....





5. Renewable resource of energy

6. Nonrenewable resource of energy

7. Acidic rains

8. Global warming

9. Air pollution

5 Compare between biofuels and fossil fuels in terms of:

Definition – The type of energy resources – Examples of each of them

Device	Biofuels	Fossil Fuels
a. Definition		
b. The Type of Energy Resources		
c. Examples		

6 Give reasons for:

1. Fossil fuels are nonrenewable sources of energy.





2. Biofuels are renewable sources of energy.

3. Water is a renewable resource of energy.

4. Oil is a nonrenewable resource of energy.

5. We should not waste or pollute water.

6. Fossil fuels are one of the major causes of pollution.

7. Increasing the amount of carbon dioxide is dangerous for the environment.

8. Burning fossil fuels has many risks to the environment.

7 What happens when:

1. We cut down trees with a fast rate?

2. We burn fossil fuels?

3. Sea creatures are decomposed under the Earth's surface?

4. We waste and pollute water?





5. The amount of carbon dioxide increases in air?

6. The carbon dioxide in the air increases and combines with water vapor?

8 Answer the following questions:

1. Mention the nonrenewable and renewable resources of energy that are used in generating electricity.

2. What can you do at home to conserve fuels and avoid wasting electricity?

1

2

3. Show how the fossil fuels is formed (in brief).

1

2

3

4. Determine the causes of air pollution.

5. Determine the causes of global warming.

6. Determine the damages of burning fossil fuels.



Pony Revision on Unit Concept 3.3

Renewable Energy Resources

Weeks
6 - 7

1 Put (✓) or (X):

1. Solar energy is a nonrenewable resource of energy. ()
2. The input of solar panels system is electrical energy. ()
3. Sunlight is known as radiant energy or radiation. ()
4. Wind turbines can be used in electric generation. ()
5. Generated electricity can be stored in batteries ()
6. Wind is a nonrenewable resource of energy. ()
7. In greenhouses, the radiant energy from the Sun is converted into electrical energy. ()
8. The output of solar panels system is electrical energy. ()
9. The concave mirror is used in collecting and focusing sunlight. ()
10. Kinetic energy can be used in electric generation. ()
11. Dams are used to generate electricity. ()
12. Water and wind are clean resources of energy. ()
13. Water may be a renewable or nonrenewable resource of energy. ()
14. The gravitational potential energy of rivers water changes to heat energy. ()
15. Water from the rivers above the dam stores kinetic energy. ()
16. Electricity can be sent along wires to cities. ()
17. We can generate electricity by wind and water. ()
18. The electricity that is generated by water is called hydroelectricity. ()

2 Complete the following sentences:

1. and are used to crush grains to make flour.
2. All plants and animals need the to survive.
3. mirrors are used in collecting and focusing sunlight.
4. In greenhouses, radiant energy from the Sun is converted into energy.
5. and are renewable energy resources.
6. Some mills use, and others use



7. The energy received from the Sun is called
8. Solar panels are used to
9. Water can be heated by passing through color tubes.
10. The input of solar panels system is energy.
11. The output of solar panels system is energy.
12. Electricity generated from water is called
13. The water from rivers above the dam stores energy.
14. The gravitational potential energy of rivers water is converted into energy.
15. Water from the built on is used in electricity generation.
16. We can use and in electricity generation.
17. and generate electricity in the dam.

3 Write the scientific term:

1. They are clean energy resources that can be used in electric generation.
(.....)
2. It is the main energy resource that plants and animals need to survive.
(.....)
3. They are types of mirrors that can be used to get heat, which can be used in cooking.
(.....)
4. It is the energy stored uphill in water rivers.
(.....)
5. It is the energy that makes turbines and generators in dams works.
(.....)
6. It is the energy that is produced due to the operations of turbines and generators in dams.
(.....)

4 Give reasons for:

1. A concave mirror can be used in cooking.

.....

.....

2. Solar energy is a clear energy resource.

.....





3. The Sun is very important to plants and animals.

4. Turbines and generators in dams have important role.

5. Renewable energy resources are very important.

6. Dams have an important role in electricity generation.

5 What happens when:

1. Water passes through the black tubes of the solar water heater?

2. The concave mirror is used in cooking?

3. The radiant energy enters the greenhouse?

4. Rivers run downhill?

5. Turbines and generators are stopped in dam?





6. We stop building dams?

6 Answer the following questions:

1. Determine the input and output energies in:

- | | |
|------------------------|-------------------|
| a. Wind turbines | b. Water turbines |
| c. Solar panels system | d. Generators |
| e. Greenhouse | |

Device	Input energy	Output energy
a. Wind turbines		
b. Water turbines		
c. Solar panels system		
d. Generators		
e. Greenhouse		

2. Mention the important of greenhouses.



حمل الآن

مجاناً وحصرياً

المراجعة رقم (3)

اختبار شهر مارس



1 A) Write the scientific term:

- The type of fuel that is produced from living organisms that can be planted. (.....)

B) What happens when ...?

- 1 Carbon dioxide gas combines with water in air.
.....
- 2 A piece of coal is burned. (According to change of energy).
.....

2 A) Choose the correct answer:

- are forms of fuel present in gas stations.
a) Gasoline and wood b) Natural gas and coal
c) Wood and coal d) Gasoline and natural gas

B) Give a reason for:

- 1 You feel heat when you put your hands near a lighted electric lamp.
.....
- 2 Generators are important in electric power stations.
.....

3 A) Complete the following sentence:

- Curiosity is a robotic vehicle that is designed to explore the surface of

B) Answer the following questions:

- 1 Using wood of trees as a fuel has negative effects on the environment. **Explain**
.....
- 2 Mention the input and output energies in the electric heater.

Input energy	Output energy
.....	

4 A) Put (✓) or (X):

- When you ride a bicycle, the kinetic energy stored in your legs is converted into chemical energy which causes the bicycle to move. ()

B) Answer the following questions:

- 1 What is the importance of solar panels?
.....
- 2 **Compare between** Radio and electric iron. (According to the produced energy).

Point of comparison	Radio	Electric iron
.....		

1 A) Complete the following sentence:

- is a way to describe the flow of energy and its conversion from one form into another.

B) Give a reason for:

- 1 Global warming occurs.
.....
- 2 Thermal energy is considered a form of wasted energy when you turn on TV.
.....

2 A) Write the scientific term:

- The mirror that is used in cooking food by solar energy. (.....)

B) Look at the opposite figure, then answer:

- a) Mention the type of fuel in each of the opposite figures.

- 1)
- 2)



- b) What are the factors that helped in forming the fuel in figure (1)?
.....

3 A) Correct the underlined word:

- Inside electric power stations, turbines are turned by steam to produce electrical energy required to operate a generator.

B) What happens when ...?

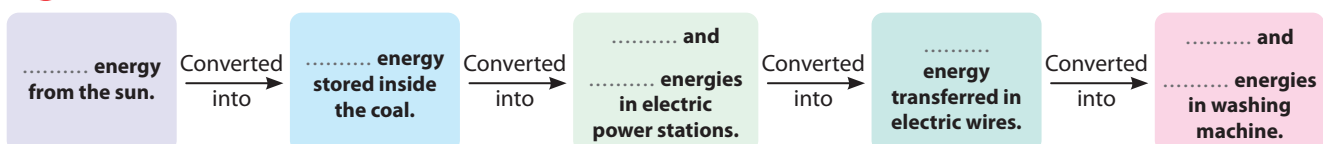
- 1 Human is exposed to smog.
.....
- 2 You use the hand bell. (According to the change of energy).
.....

4 A) Put (✓) or (X):

- Coal can be used to produce electrical energy. ()

B) Answer the following:

- 1 Complete the following energy chain of washing machine.



- 2 Mention the harmful effects of acid rain. (only two).
.....

1 A) Cross out the odd word:

- Speaker – Hand bell – Electric iron – Drum

B) What happens when ...?

- 1 The battery of a toy car has run out.
.....
- 2 The remains of marine organisms are decomposed under the Earth's surface.
.....

2 A) Put (✓) or (X):

- Wood is burned inside the car engine, allowing the engine to rotate the car wheels. ()

B) Answer the following questions:

- 1 Not all the energy entering the energy chain reaches the device. **Explain.**
.....
- 2 Mention the ways to conserve fossil fuel.
.....
.....
.....

3 A) Choose the correct answer:

- Both hair dryer and water kettle produce energy.
a) light b) chemical c) electrical d) thermal

B) Give a reason for:

- 1 When you rub your hands, you feel warm.
.....
- 2 Replacing fossil fuels with renewable energy resources.
.....

4 A) Correct the underlined word:

- The high cost of producing energy in windmills is one of its advantages.

B) Mention the energy transformation in the following:

- 1 Washing machine.
.....
- 2 Electric bulb.
.....

1 A) Correct the underlined word:

- Most of energy chains start with the moon.

B) Give a reason for:

- The amount of used energy in any energy chain is equal to the produced energy.
.....
- Water is considered as a renewable resource of energy, while gasoline is a nonrenewable resource of energy.
.....

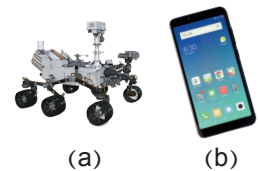
2 A) Write the scientific term:

- It is any substance which produces thermal energy on burning.

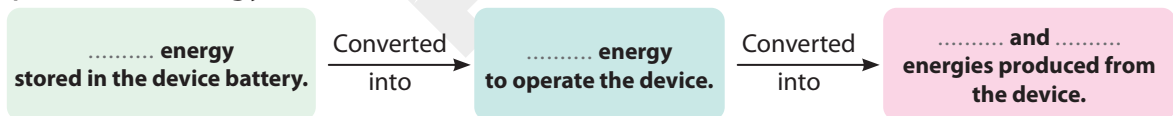
B) Look at the opposite figure, then answer:

a) Mention the source of energy of each of the following figures.

-
-



b) Complete the energy chain in device (b):



3 A) Choose the correct answer:

- In soap dispenser, energy is converted into energy.
 - kinetic – chemical
 - potential – kinetic
 - electrical – kinetic
 - chemical - potential

B) What happens ...?

- When solar powered calculator is exposed to sunlight.
.....
- If humans decrease the burning of fossil fuels.
.....

4 A) Complete the following sentence:

- The energy stored in batteries is energy.

B) What is the function of each of the following...?

- Old wind mills.
.....
- Modern wind mills.
.....

1 A) Cross out the odd word:

- Gasoline – Charcoal – Natural gas – Oil

B) Mention:

- 1 The wasted energies produced by a blender.
.....
- 2 The negative effects of using chemicals in many factories.
.....

2 A) Put (✓) or (X):

- Ancient people used wind as a fuel before the discovery of gasoline. ()

B) Give a reason for:

- 1 Mars Rover Curiosity operates for a long period of time on Mars without any need to be recharged.
.....
- 2 We must conserve fossil fuel.
.....

3 A) Complete the following sentence:

- As a result of between bike's tires and the road, kinetic energy is converted into energy.

B) Answer the following questions:

- 1 There is an energy change in human body during running. **Explain.**
.....
- 2 **Classify the following** sources of energy into renewable resources and nonrenewable resources.
(Water – Oil – Charcoal – Grass - Gasoline)

Renewable resources	Nonrenewable resources
.....	

4 A) Write the scientific term:

- Electricity generated from the movement of water.

B) What happens ...?

- 1 When the pesticides used in farms are mixed with water in canals and rivers.
.....
- 2 To the change of energy when you turn on the television.
.....

1 A) Write the scientific term:

- The type of fuel that is produced from living organisms that can be planted. (Biofuels)

B) What happens when ...?

- Carbon dioxide gas combines with water in air.
 - Acid rain is formed.
- A piece of coal is burned. (According to change of energy).
 - The chemical energy stored in the coal is converted into thermal energy.

2 A) Choose the correct answer:

- are forms of fuel present in gas stations.
 - Gasoline and wood
 - Natural gas and coal
 - Wood and coal
 - Gasoline and natural gas

B) Give a reason for:

- You feel heat when you put your hands near a lighted electric lamp.
 - Because some of the electrical energy is converted into thermal energy.
- Generators are important in electric power stations.
 - Because they convert kinetic energy into electrical energy.

3 A) Complete the following sentence:

- Curiosity is a robotic vehicle that is designed to explore the surface of Mars.

B) Answer the following questions:

- Using wood of trees as a fuel has negative effects on the environment. **Explain**
 - As the continuity of cutting down trees leads to deforestation.
- Mention the input and output energies in the electric heater.

Input energy	Output energy
Electrical energy	Thermal energy

4 A) Put (✓) or (X):

- When you ride a bicycle, the kinetic energy stored in your legs is converted into chemical energy which causes the bicycle to move. (X)

B) Answer the following questions:

- What is the importance of solar panels?
 - They convert solar energy into electrical energy.
- Compare between** Radio and electric iron. (According to the produced energy).

Point of comparison	Radio	Electric iron
Produced energy	Sound energy	Thermal energy

1 A) Complete the following sentence:

- **Energy chain** is a way to describe the flow of energy and its conversion from one form into another.

B) Give a reason for:

- 1 Global warming occurs.
 - Due to the increasing amount of carbon dioxide gas in the air, forming a layer in the atmosphere that traps heat on Earth.
- 2 Thermal energy is considered a form of wasted energy when you turn on TV.
 - Because it doesn't help the TV to do its main function.

2 A) Write the scientific term:

- The mirror that is used in cooking food by solar energy.

(Concave mirror)

B) Look at the opposite figure, then answer:

- a) Mention the type of fuel in each of the opposite figures.

1- Fossil fuel.

2- Biofuel.



- b) What are the factors that helped in forming the fuel in figure (1)?

- The Earth's heat and pressure.

3 A) Correct the underlined word:

- Inside electric power stations, turbines are turned by steam to produce electrical energy required to operate a generator. (Kinetic)

B) What happens when ...?

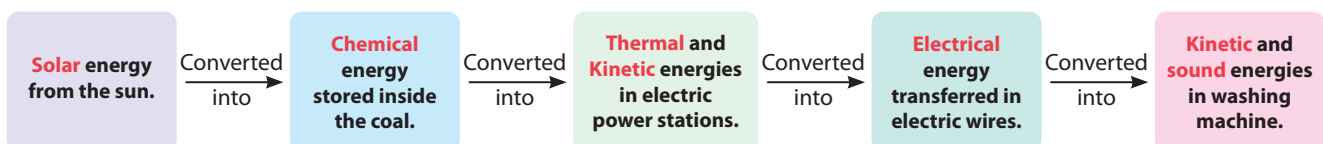
- 1 Human is exposed to smog.
 - It leads to irritation of the human eye and lungs and damage to the tissues of the respiratory system.
- 2 You use the hand bell. (According to the change of energy).
 - The kinetic energy is converted into sound energy.

4 A) Put (✓) or (X):

- Coal can be used to produce electrical energy. (✓)

B) Answer the following:

- 1 Complete the following energy chain of washing machine.



- 2 Mention the harmful effects of acid rain. (only two).

- 1- Death of trees. 2- Change in the chemical nature of lakes and kill fish.

1 A) Cross out the odd word:

- Speaker – Hand bell – Electric iron – Drum

(Electric iron)

B) What happens when ...?

- 1 The battery of a toy car has run out.
 - The toy car stops working.
- 2 The remains of marine organisms are decomposed under the Earth's surface.
 - Oil is formed.

2 A) Put (✓) or (X):

- Wood is burned inside the car engine, allowing the engine to rotate the car wheels. (X)

B) Answer the following questions:

- 1 Not all the energy entering the energy chain reaches the device. **Explain.**
 - Because some of the energy is wasted in the form of heat.
- 2 Mention the ways to conserve fossil fuel.
 - 1- Walking or using bicycles instead of driving a car.
 - 2- Turning off the lights when they are not needed.
 - 3- Replacing fossil fuels with renewable energy resources.

3 A) Choose the correct answer:

- Both hair dryer and water kettle produce energy.
 - a) light
 - b) chemical
 - c) electrical
 - d) thermal

B) Give a reason for:

- 1 When you rub your hands, you feel warm.
 - Because kinetic energy is converted into thermal energy.
- 2 Replacing fossil fuels with renewable energy resources.
 - Because renewable resources don't pollute the environment.

4 A) Correct the underlined word:

- The high cost of producing energy in windmills is one of its advantages. (low)

B) Mention the energy transformation in the following:

- 1 Washing machine.
 - From electrical energy to kinetic energy.
- 2 Electric bulb.
 - From electrical energy to Light energy and thermal energy.

1 A) Correct the underlined word:

- Most of energy chains start with the moon.

(Sun)

B) Give a reason for:

- The amount of used energy in any energy chain is equal to the produced energy.
 - Because energy can neither be created nor destroyed, but only converted from one form to another.
- Water is considered as a renewable resource of energy, while gasoline is a nonrenewable resource of energy.
 - Because water can be renewed soon after it is used, while gasoline is used faster than it can be renewed.

2 A) Write the scientific term:

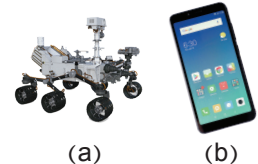
- It is any substance which produces thermal energy on burning.

(Fuel)

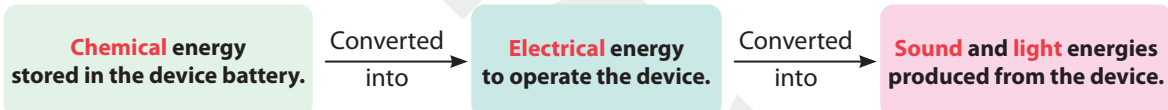
B) Look at the opposite figure, then answer:

- a) Mention the source of energy of each of the following figures.

- a) It uses solar panels and batteries.
- b) It uses electrical energy.



- b) Complete the energy chain in device (b):



3 A) Choose the correct answer:

- In soap dispenser, energy is converted into energy.
 - kinetic – chemical
 - potential – kinetic
 - electrical – kinetic
 - chemical – potential

B) What happens ...?

- When solar powered calculator is exposed to sunlight.
 - The solar cells change the solar energy into electrical energy, which is used to operate the calculator.
- If humans decrease the burning of fossil fuels.
 - The amount of carbon dioxide gas in air will decrease.

4 A) Complete the following sentence:

- The energy stored in batteries is **Chemical** energy.

B) What is the function of each of the following...?

- Old wind mills.
 - They were used to grind grains using wind energy.
- Modern wind mills.
 - They are used to generate electricity from wind energy.

1 A) Cross out the odd word:

- Gasoline – Charcoal – Natural gas – Oil

(Charcoal)

B) Mention:

- The wasted energies produced by a blender.
 - Sound energy and thermal energy.
- The negative effects of using chemicals in many factories.
 - They pollute the air and also nearby water and soil.

2 A) Put (✓) or (X):

- Ancient people used wind as a fuel before the discovery of gasoline.

(X)

B) Give a reason for:

- Mars Rover Curiosity operates for a long period of time on Mars without any need to be recharged.
 - Because it has solar panels which change solar energy into electrical energy, which recharge its batteries.
- We must conserve fossil fuel.
 - Because it is a non-renewable source of energy which takes long time to renew.

3 A) Complete the following sentence:

- As a result of **friction** between bike's tires and the road, kinetic energy is converted into **thermal** energy.

B) Answer the following questions:

- There is an energy change in human body during running. **Explain.**
 - The chemical energy inside human body changes into kinetic energy.
- Classify the following** sources of energy into renewable resources and nonrenewable resources.

(Water – Oil – Charcoal – Grass - Gasoline)

Renewable resources	Nonrenewable resources
Water – Charcoal – Grass	Gasoline – Oil

4 A) Write the scientific term:

- Electricity generated from the movement of water.

(Hydroelectric energy)

B) What happens ...?

- When the pesticides used in farms are mixed with water in canals and rivers.
 - It causes the pollution of water and soil.
- To the change of energy when you turn on the television.
 - The electric energy changes into light energy and sound energy.

حمل الآن

مجاناً وحصرياً

المراجعة رقم (4)

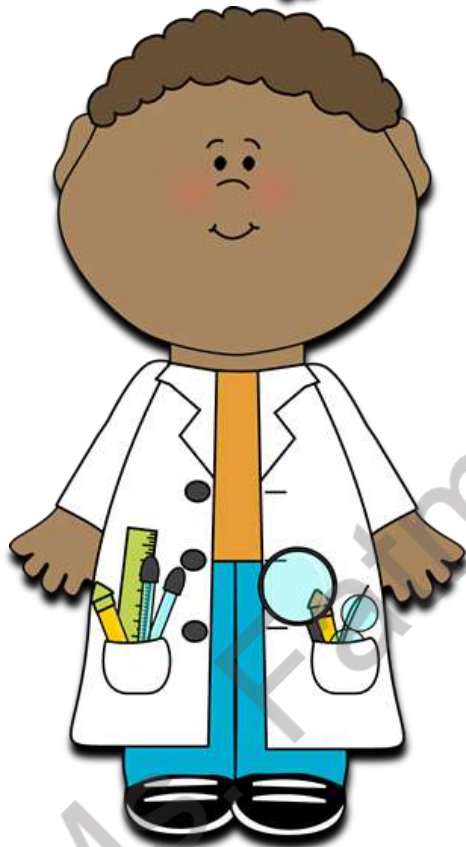
اختبار شهر مارس



Science Primary 4

Second term

February Exam Revision



Unit (3)-Energy and Fuel

Concept (3-1)

Devices and Energy

Concept (3-2)

About Fuel

Concept (3-3)

Renewable Energy Resources

Activity 1-5

Prepared by:

Ms. Fatma Fathy Saad



Prepared by Ms. Fatma Fathy Saad

فيديو شرح الدرس موجود علي قناتنا علي اليوتيوب

Manaheg YouTube Channel

WhatsApp: 01274112011



Concept (3-1)-Devices and Energy

-As we know, most of energy we use is produced inside the sun, and energy can be changed from one form to another.

-So, what types of energy transformations are required for sunlight to operate devices?

-Different devices such as solar cell changes the energy of sunlight into electrical energy which is used to operate devices.

-Energy in Remote-Controlled cars:

Batteries inside the remote-controlled toys are the resource of chemical energy, as this energy is converted into electrical energy, which is converted into kinetic energy or sound energy.



Chemical Energy
(inside batteries)



Electrical Energy
(inside toy)



Kinetic and
sound energies

-When the batteries run out of charge, they can be:

- 1-Recharged by connecting the device to a nearby charger.
- 2-Replacing the old batteries with new ones.



-Mars Rover Curiosity:

- It is one of the most well-known robots which travels on the surface of Mars.
- It uses solar panels and batteries as a source of energy.
- It converts solar energy into electrical energy, which is used to charge the rover's batteries.

The electrical energy from the batteries is also transformed into kinetic energy and thermal energy as the vehicle moves across Mars surface.

Energy Chain

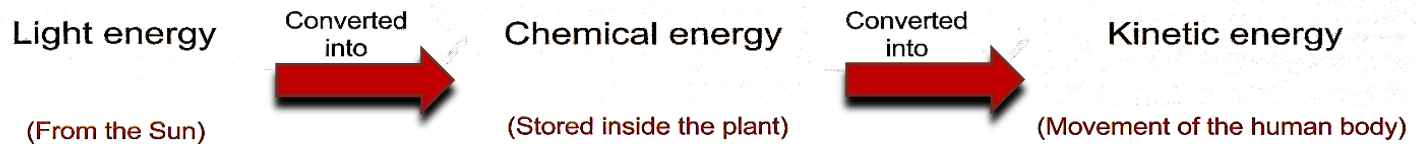
Energy chain: is a way to describe the energy flow that occurs when we use different devices and it is often starts with the sun.



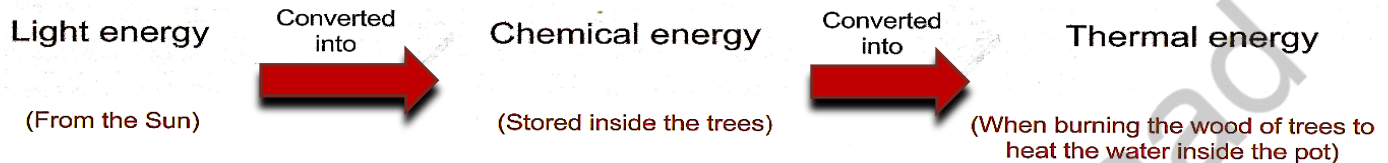
Prepared by Ms. Fatma Fathy Saad
فيديو شرح الدرس موجود علي قناتنا علي اليوتيوب
Manaheg YouTube Channel
WhatsApp: 01274112011



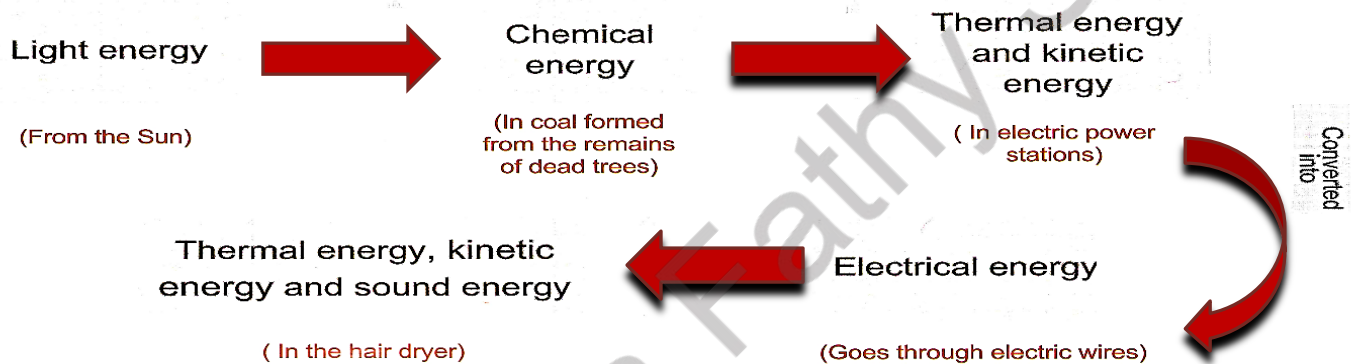
1-Energy chain when eating food:



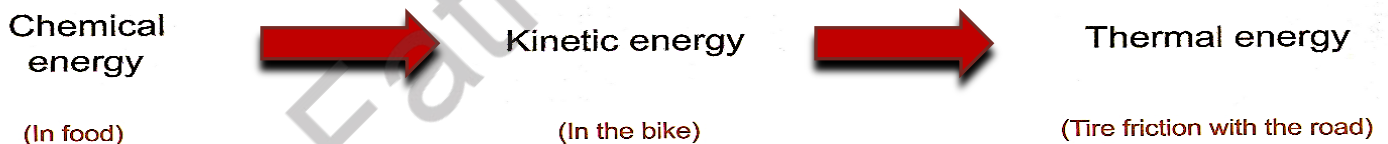
2-Energy chain when heating a pot of water over fire:



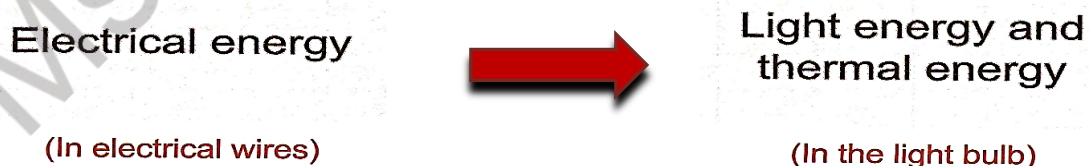
3-Energy chain in hair dryer:



4-Energy chain while riding a bike:



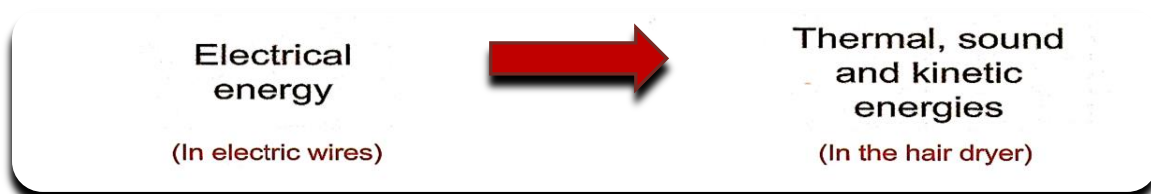
5-Energy chain when a light bulb is switched on:



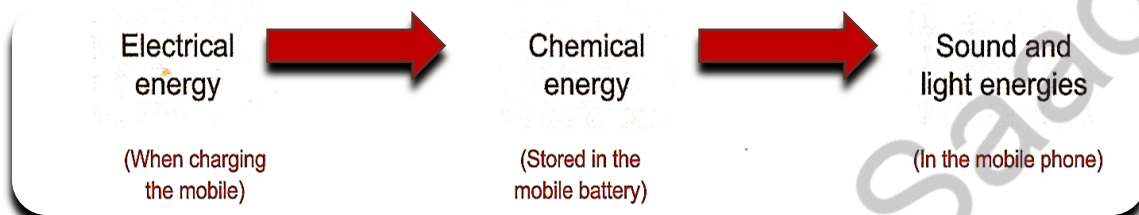
Prepared by Ms. Fatma Fathy Saad
فيديو شرح الدرس موجود علي قناتنا علي اليوتيوب
Manaheg YouTube Channel
WhatsApp: 01274112011



6-Energy chain in the hair dryer:



7-Energy chain in the Mobile Phone:



8-Energy chain in the Blender :



-Some of the energy is **wasted** in different forms, while travelling through the energy chain, where most of the lost energy **leaks** out in the form of **heat**.



Prepared by Ms. Fatma Fathy Saad
فيديو شرح الدرس موجود علي قناتنا علي اليوتيوب
Manaheg YouTube Channel
WhatsApp: 01274112011



Energy and Everyday Devices

Device	Function	Consumed Energy (input)	Produced Energy (Output)
 Hair dryer	Drying Hair	Electrical Energy	Thermal, kinetic and sound energy
 Soap dispenser (Detergent bottle)	Getting Soap up the bottle	Potential Energy	Kinetic energy
 Washing machine	Washing Clothes	Electrical Energy	Kinetic and sound energy
 Electric bulb	Lighting	Electrical Energy	Light energy and thermal energy
 Battery powered clock	Showing the time	Chemical energy	Kinetic energy
 Flashlight	Lighting	Chemical energy	Light energy and thermal energy

The law of conservation of energy:

Energy can neither be created nor destroyed, but only converted from one form of energy into another.



Prepared by Ms. Fatma Fathy Saad
 فيديو شرح الدرس موجود علي قناتنا علي اليوتيوب
 Manaheg YouTube Channel
 WhatsApp: 01274112011



Device	Function	Input	Output
 Hand bell	Alerting	Kinetic Energy	Sound Energy
 Electric heater	Warming	Electrical Energy	Thermal Energy
 Speakers	Audio Output	Electrical Energy	Sound Energy
 Electric iron	Ironing Clothes	Electrical Energy	Thermal energy
 Drum	Playing Music	Kinetic Energy	Sound Energy
 Mobile phone	Ringling, illuminating and processing information	Electrical Energy	Light and sound Energies.

-All the energy that **enters** a device must finally **come out** of it, either in the **same form or in other forms**.

-All devices have energy coming in them (called **input** energy) and coming out of them (called **output** energy).



Prepared by Ms. Fatma Fathy Saad
 فيديو شرح الدرس موجود علي قناتنا علي اليوتيوب
 Manaheg YouTube Channel
 WhatsApp: 01274112011



-When we track the energy flow in any device, we notice that sometimes the converted energy does not help the device do the function for which it was designed, such as the sound energy produced by the hair dryer.

-Noise from hair drier (sound energy) is considered as “wasted energy.” (G.R) because sound energy does not help the device do its main function.

-When using a mobile phone for a long time, some energy is wasted as thermal energy, that does not help the device do its main functions.

Concept (3-2)-About Fuel

-Fuel is one of the most important resources of energy that humans depend on to get energy.

Fuel: It is any substance that produces thermal energy when it is burned.

-Fuel is used for several purposes G.R. because we can use fuels in warming our houses or supply cars with energy to move.

-Fuel is important to move cars G.R. because fuel is burned inside the car engine producing thermal energy that is converted into kinetic energy causes the car to move.

Light energy

(From the Sun)



Chemical energy

(Stored inside coal)



Thermal energy

(When burning the coal)

Uses of some different forms of fuel

Coal and wood

They are used in cooking food and warming

Gasoline and natural gas

They are used in generating electricity and operating all means of transportation



Prepared by Ms. Fatma Fathy Saad

فيديو شرح الدرس موجود علي قناتنا علي اليوتيوب

Manaheg YouTube Channel

WhatsApp: 01274112011



Types of Fuel

A-Biofuel



Biofuel: They are fuels made from living organisms that can be planted

-Examples: Wood and charcoal (is made from wood).

-Some types of plants such as grass, corn and wood chips can be used to make a liquid fuel

-Biofuels are renewable fuels G.R. because they can be continually renewed as plants grow.

-Although biofuels are renewable energy resources, they should be conserved G.R. because getting biofuels requires cutting trees and cutting trees at a faster rate than they can grow leads to deforestation.

A-Fossil fuels

Fossil Fuels: They are fuels formed from the remains of plants and animals that were buried and decomposed over a long period of time.

-Examples:

-Oil and natural gas were formed from the decomposition of the remains of ancient sea animals.

-Coal was formed from the decompositions of the remains of ancient plants.

-Fossil fuels are nonrenewable G.R. because they are gone and cannot be easily renewed.

Formation of coal



-Millions of years ago, large areas of the Earth were covered in swamps with a lot of plants growing nearby.



-When those plants died, their remains were decomposed and covered by hundreds of meters of mud and rocks.



-Due to the effect of the Earth's heat and pressure, those remains were turned into coal.

-The original source of energy in biofuel and fossil fuels is the light energy of the sun.



Formation of Oil

When the marine creatures died their remains settled on the ocean floor.

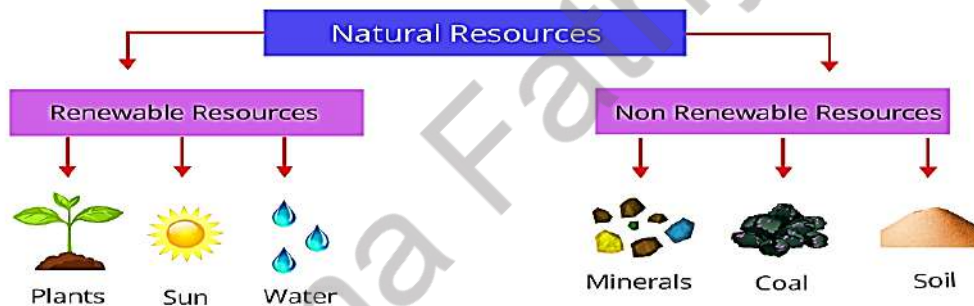


Over millions of years' layers of sediments and rocks covered the remains of those sea creatures these layers pressed down causing extreme **heat** and **pressure**



Over time, as a result of extreme heat and pressure, those remains converted into oil.

<u>Nonrenewable energy resources</u>	<u>Renewable energy resource:</u>
It is a natural material that is used faster than it can be replaced	It is a natural material that can be replaced soon after it is used.



-The following table shows the differences between oil and water and how to conserve each of them:

Oil	Water
nonrenewable energy resource.	renewable energy resource.
<u>Conservation of oil:</u> -Reducing the use of private vehicles. -Using of public transportation	<u>Conservation of water:</u> -Avoid wasting or polluting water. -Growing plants that do not need large amounts of water for irrigation

-Whatever the resource of energy is renewable or nonrenewable, we should conserve the energy through many ways such as:

- 1-Turning off lights when they are not needed
- 2-Unplugging electrical appliances when they are not used.



Prepared by Ms. Fatma Fathy Saad
 فيديو شرح الدرس موجود علي قناتنا علي اليوتيوب
 Manaheg YouTube Channel
 WhatsApp: 01274112011



How fossil fuel is used to produce electricity

1- Fuel is burned: it produces thermal energy.

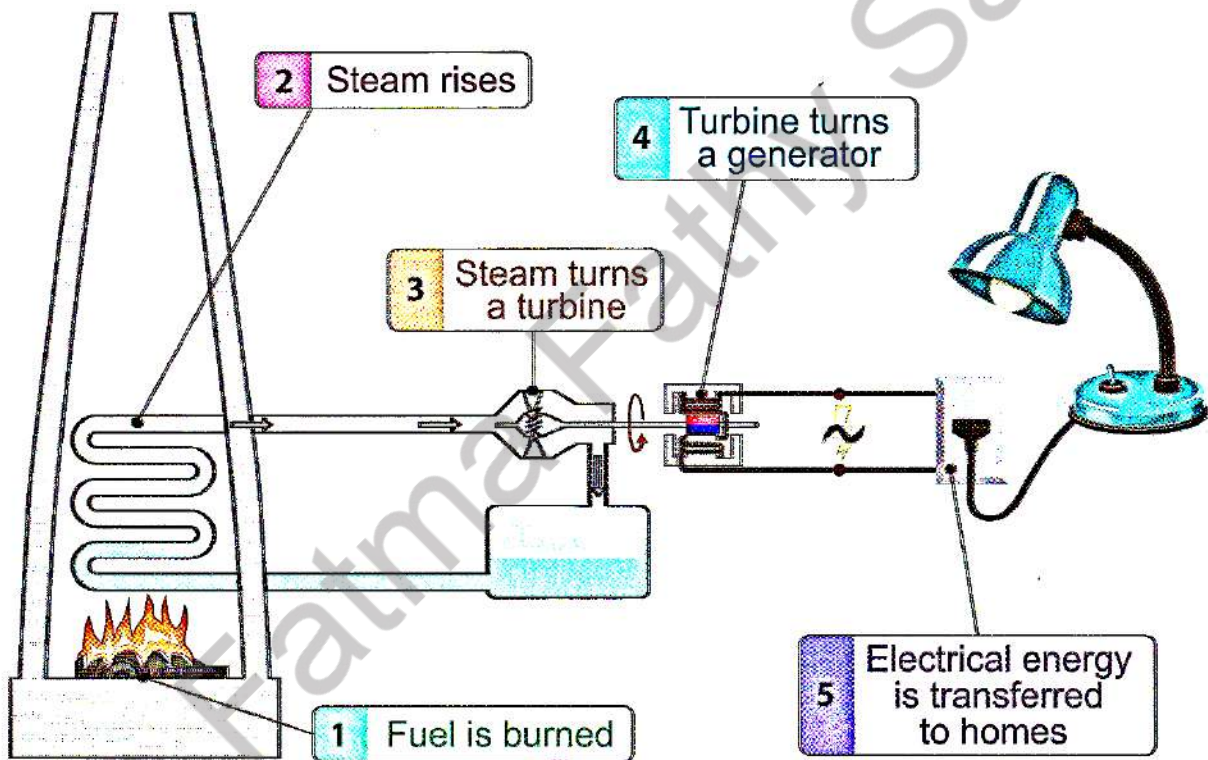
2- Steam rises: the thermal energy is used to heat water and make steam.

3- Steam turns turbines: The steam is directed through pipes and used to turn turbine.

4- Turbines turn a generator: The movement of turbine produces kinetic energy which is used to operate a generator.

-When the generator is turned on, it converts the kinetic energy into electrical energy.

5- Finally, the electrical energy is transferred through wires to homes to operate different devices.



Big City Environmental problems

Some causes of pollution in big cities

1-Smog produced from burning of fuels pollutes the air.

2-Pesticides used in farms can be carried into water in canals and rivers when rain falls, this leads to pollution of soil and water.

3-Chemicals used in many factories pollute the air and also the nearby water and soil.



Some effects of air pollution on human's health

- Smog from cars causes irritation of human's eyes and lungs.
- Smog is full of small particles that the human breathes in, these particles irritate the lungs, causing the damage of tissues of the respiratory system.

Burning fuels and pollution

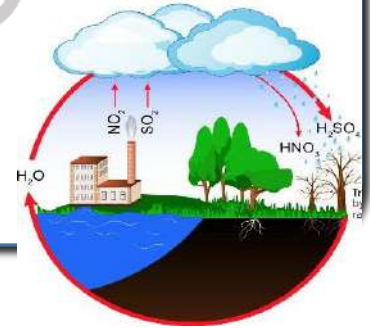
Harms from burning fossil fuels

- Burning of coal and oil produces carbon dioxide gas which causes:

Acid rain

Carbon dioxide gas can combine with water in the air to form acid rain that leads to:

- The death of trees
- The change in the chemical nature of lakes and kill fish.
- The change in the chemical nature of soil.
- Dissolving some rocks including the rocks used for building



Global warming

Increasing the amount of carbon dioxide gas in the air forms a layer in the atmosphere that traps heat on Earth causing a slow rise in the Earth's temperature which is known as global warming.



How to reduce rain and global warming?

We have to reduce our usage of energy to reduce the amount of burning fossil fuels, so the amount of carbon dioxide and other pollutants in the air will decrease.



Prepared by Ms. Fatma Fathy Saad
فيديو شرح الدرس موجود علي قناتنا علي اليوتيوب
Manaheg YouTube Channel
WhatsApp: 01274112011



Conservation of fossil fuels

Fossil fuels will run out from the earth if we don't reduce using them as there is limited amount of fossil fuels available on Earth.

Some ways to conserve fossil fuels:

- 1-Walking or using bicycle instead of driving a car.
- 2-Turning off the lights when you are not in the room.
- 3-Replacing fossil fuels with renewable energy resources such as water, wind, and solar energy.



Disadvantages of using fossil fuels to produce energy:

- Air pollution
- Global warming which raises the temperature of Earth and changes its climate.

Renewable and nonrenewable energies resources

Renewable	Nonrenewable
Replaced soon after it is used.	Used faster than it can be replaced.
<u>Examples</u>	
Solar energy	Coal
Water	Gasoline
Charcoal	Oil
Wood	Natural gas
Wind	



Prepared by Ms. Fatma Fathy Saad

فيديو شرح الدرس موجود علي قناتنا علي اليوتيوب

Manaheg YouTube Channel

WhatsApp: 01274112011



Concept (3-3)-Renewable Energy Resources

-Electricity can be generated using renewable energy resources which are solar energy, wind and water in different ways:

-Solar panels convert solar energy into electrical energy.

-Wind turbines convert kinetic energy of wind into electrical energy.

-Water turbines convert kinetic energy of water into electrical energy.



Windmills and Watermills

Hundreds of years ago, people needed machines to make their lives easier, so they used windmills and watermills to help them crush grain to make flour.

Points of comparison	Windmills	Watermills
Energy used	Kinetic energy of <u>wind</u>	Kinetic energy of <u>water</u>
Advantages	-Low cost -Renewable energy resources.	
Disadvantages	Sometimes the wind does not blow and the windmills do not move, so they are unable to do their job.	The water supply may dry up and the watermills do not move, so they are unable to do their job.
		

Old mills and modern turbines

Points of comparison	Old Windmills	Modern wind turbines
Energy used	<u>Wind</u> kinetic energy	<u>Wind</u> kinetic energy
Shape of blades	<u>Have</u> openings	<u>Don't have</u> openings
No. of blades	<u>More than</u> those of the modern wind turbines	<u>Fewer than</u> those of the old windmills.
Size	<u>Shorter than</u> the modern wind turbines	<u>Taller than</u> the old windmills
Function	Crushing grains	Generating electricity

Solar Energy



- The sun is the main source of energy on the earth.
- The sun provides us with heat and light.
- Living organisms need the sun to survive.

Solar Energy: It is the energy comes from the sun which contains light and heat energies from the sun.

- The solar energy that is produced by the sun contains a type of energy called radiant energy or radiation which is found in the sun rays.

Uses of solar energy:

1-Solar energy is a direct source of thermal energy.

2-Warming houses:

Houses can be built by placing large windows on the walls that face the sun for most of the day G.R. to enable the energy of the sun to warm them.

3-Cooking food:

Convergent or concave mirrors are used to collect and focus sun rays to heat metal pots and cook the food inside.

4-Solar Water heater:

Are made of panels that are made of black pipes can be placed on the roof of houses to heat the water.



5-Green house:

- Green house are used to plant the crops that only grow in warm climate.
- Green house allow radiant energy from sun and convert it into thermal energy to warm green house.

Solar panel

Solar panels are composed of many small solar cells that capture solar energy especially radiant energy and convert it into electrical energy.

How do solar panel work?

Solar panel convert radiant energy into electrical energy.



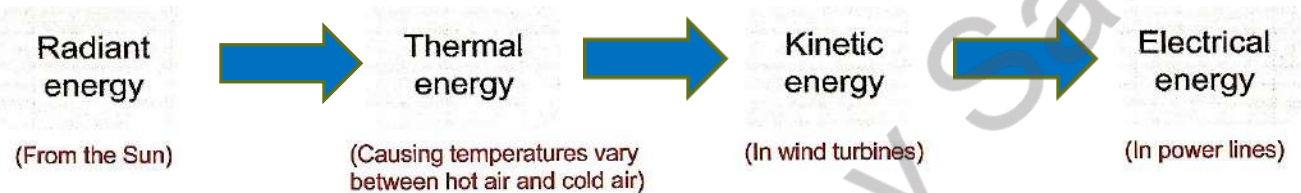
Uses of electricity generated by solar panel:

- Light the streets
- Recharge some types of batteries, like some calculators with small solar cells.
- Operate various electric devices in houses.
- Operate irrigation equipment in some villages.

Harness of wind

-In wind turbines, when the kinetic energy of wind increases, the blades rotate faster, so the efficiency of wind turbine increases.

-Energy chain in wind turbines:



Prepared by Ms. Fatma Fathy Saad

فيديو شرح الدرس موجود علي قناتنا علي اليوتيوب

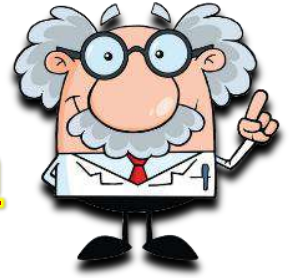
Manaheg YouTube Channel

WhatsApp: 01274112011



Second Term

February Exam Revision



Complete the following:

- 1-In any energy chain, some of the energy is lost in the form of
- 2-Wood and are examples of biofuel, while and are examples of fossil fuels.
- 3-When you ride a bicycle, the energy stored in your body is converted into energy which cause the bicycle to move.
- 4-When we expose our bodies to the sun we feel
- 5-The energy can be from one form to another.
- 6-The change of electrical energy into sound energy in the radio is an example that proves the law of
- 7-The natural resources that can be replaced shortly after being used are called resources energy.
- 8-The output energy of burning coal is energy, which is used to produce energy in electric power station in order to generate electrical energy.
- 9-The output energy that helps the washing machine to do its main function is energy, and this energy is considered the energy of the hand bell.
- 10-The input energy of the toy car is energy that is stored in its battery and then converted into Energy in its wires to operate its motor.
- 11-The generator in electric power station changes energy into energy.
- 12-Remote controlled of toy cars changes energy stored in its batteries into energy that is turn changes into energy which is used to move the car.
- 13-When you rub your hands together, the energy is converted into energy.
- 14-Coal, and can be used in generating electricity.
- 15-To operate an electric mixer we use..... energy.



Prepared by Ms. Fatma Fathy Saad
فيديو شرح الدرس موجود علي قناتنا علي اليوتيوب
Manaheg YouTube Channel
WhatsApp: 01274112011



- 16-When your cell phone is out of charge, you must recharge its..... to operate again.
- 17-Some calculators can change solar energy into energy by using
- 18-On planet Mars, curiosity robot is operated by using energy from sunlight that is converted into energy used to recharge its batteries.
- 19-The unusable energy that produced from the electric lamp is
- 20-.....is a renewable energy resource.
- 21-Fossil fuel includes oil, and
- 22-Global warming causes the raise of on Earth and changes its climate.
- 23-In hand bell kinetic energy is converted into energy.
- 24-Fuel is used as a source of energy.
- 25-Coal and oil are considered as resources of energy.
- 26-We need energy for cooking food and warming houses.
- 27-The Sun provides Earth with light and
- 28-Energy produced from the radio which helps the device do its main function is energy.
- 29-The natural resources that can be replaced shortly after being used are called resources energy.
- 30-The generator in electric power station changes energy into energy.
- 31-Radiant energy is used to generate electricity directly by using, or indirectly as it causes blowing of that is used to rotate wind turbines.
- 32-A wind turbine spins faster when the kinetic energy of increases.
- 33-The energies that are used in modern wind turbines and old windmills are considered as energy resources.
- 34-Wind turbines and windmills use the energy of to be powered.
- 35-When the energy of wind increases, the speed of rotation of turbine blades will increase.
- 36-Wind turbines are used to generate.....
- 37-In electric power stations, the burning coal produces energy to generate electricity while wind turbines generate electricity by using the energy of wind.
- 38-Although modern wind turbines and old windmills vary in shape, they all use energy to be powered.
- energy that allows farmers to plant crops which grow in climates.

- 39-Greenhouses convert the radiant energy of the sun rays into
- 40-Solar cells that are found in some calculators produce energy that is used to recharge their
- 41-Wind is formed due to the effect of energy coming from the in the form of rays.
- 42-By increasing the rotation of wind turbine blades, the wind turbine generates more energy.
- 43-When the energy of wind increases, the speed of rotation of turbine blades will
- 44-Both wind and water movement produce energy that is used to rotate turbines to generate energy.
- 45-We can use a device known as wind to generate electricity in places where strong air blows.
- 46-Clouds are formed due to the then of water of river and seas.
- 47-In some villages solar panels are used to generate energy that is used to operate equipment.
- 48-WE can use solar energy in cooking by using which collect and focus onto metal pots to heat them.

Choose the correct answer:

- 1-Toy cars need energy to do all the following functions, except
 a-moving forward and backward b-rotation in circle
 c-moving right and left d-rotation around the moon.
- 2-Among forms of fuel that present in car fuel stations are
 a-gasoline and wood b-natural gas and coal
 c-wood and coal d-gasoline and natural gas
- 3-All of the following are examples of renewable energy resources, except
 a-fossil fuel b-waterfalls c-wind d-sunlight
- 4-The input energy when using the hair dryer is the energy.
 a-Electrical b-potential c-kinetic d-thermal.
- 5-Fossil fuels needto be formed under the Earth's surface.
 a-five years b-ten years
 c-hundreds of years d-millions of years



Prepared by Ms. Fatma Fathy Saad
 فيديو شرح الدرس موجود علي قناتنا علي اليوتيوب
 Manaheg YouTube Channel
 WhatsApp: 01274112011



- 6-The steps of forming fossil fuel, don't include of the remains of the living organisms.
a-decaying b-cooling c-burying d-heating
- 7-Electric wires are made of
a-copper b-carbon c-wood d-glass
- 8-All the following are forms of fuel, except
a-wood b-natural gas c-gasoline d-glass
- 9-The sun provides us withand
a-sound – heat b-light – electricity
c-sound – light d-heat – light
- 10-All the following are renewable energy resources, except
a-waterfalls b- coals c- the Sun d- wind
- 11-Both hair dryer and electrical water kettle produce Energy
a-chemical b-thermal c-light d-potential
- 12-Some electrical devices need energy to be recharged
a-electrical b- thermal c-potential d-sound
- 13-When you use the hand bell, the energy changes into sound energy.
a-light b-thermal c-kinetic d-electrical
- 14-Extreme heat and pressure under the Earth's surface has an important role in forming
a-wood b-wind c-fossil fuel d-biofuel
- 15-Oil is a non-renewable energy resource that is used inside a
a-flash light b-car engine
c-electric fan d-washing machine
- 16-It takes several for a spacecraft to travel from Earth to Mars.
a-seconds b-minutes c-days d-months.
- 17-You feel warm when you rub your hands together, because energy
a-thermal b-light c-electrical c-sound
- 18-Sound and energies are from output energies when operating the mobile phone.
a-electrical b-potential c-chemical d-light
- 19-We can use the energy obtained from burning of wood directly in all of the following situations, except
a-warming houses b-operating television
c-cooking food d-boiling water
- 20-Some kinetic energy is converted into energy due to friction of bike's tire with the road.
a-light b-electrical c-potential d-thermal

21-Inside the electric power station, heating of..... produce steam.

a- turbines b-generators c-water d-fuel

22-While playing guitar, the energy changes into sound energy.

a-kinetic b-light c-chemical d-potential

23-The output energy when playing drums is the energy.

a-chemical b-light c- sound d-potential

24-All the following are forms of fossil fuel, except.....

a-water b-coal c-natural gas d-oil

25-Which of the following is a renewable energy resources?

a-running bicycle b-running car
c-running water d-running person

26-Curiosity rover is designed to explore

a-Earth planet b-Mars planet c-the sun d-the moon

27-All the following factors play an important role in the formation of fossil fuel, except.....

a-extreme pressure b-extreme heat
c-the moon light d-rocks and sediment.

28-To move a car, the fuel must be The car engine at first.

a-freeze inside b-Cooled inside
c-burned inside d-removed from

29-By rubbing hands energy is changed into thermal energy.

a-chemical b-kinetic c-sound d-potential

30-..... is a type of biofuel which is made of wood.

a-Coal b-Oil c-Charcoal d-Natural gas

31-..... is the main source of energy on the Earth's surface.

a-Oil b-gasoline c-The sun d-The moon

32-The output energy in the Mars exploring vehicle is energy.

a-electrical b-light c-kinetic d-solar

33-The energy source of a toy car is

a-engine b-wires c-battery d-wheels

34-The output energy when playing drums is the energy.

a-chemical b-light c-sound d-potential

35-All of the following are examples of renewable energy resources, except

a-fossil fuel b-waterfalls c-wind d-sunlight

36-Water flows through turbines in dams to generate energy.

a-electrical b-potential c-solar d-light

37-The sun provides us withand

a-sound – heat b-light – electricity

c-sound – light d-heat – light

38-All the following are renewable energy resources, except

a-waterfalls b- coals c- the Sun d- wind

39-Using convergent sheets in cooking food is one of the benefits of using the solar energy.

a-paper b-plastic c-mirror d-wooden

40-River water evaporates by the help of heat produced from

a-kettles b-the Sun c-electric heaters d-electric iron

41-Inside the electric power station, heating of..... produce steam.

a- turbines b-generators c-water d-fuel

42-When the wind turbine blades rotate, this causes wind turbines to rotate and generating energy

a-electrical b-solar c-chemical d-potential

43-Which of the following is a renewable energy resources?

a-running bicycle b-running car

c-running water d-running person

44-The change of energy in an is opposite to the change of energy in a wind turbine.

a-electrical bell b-electric heater

c-electric iron d- electric fan

45-..... is the main source of energy on the Earth's surface.

a-Oil b-gasoline c-The sun d-The moon

46-All of the following are renewable energy resources except

a-fossil fuel b-waterfalls c-wind d-sunlight

47-Solar panel use solar energy to generate energy which is used in lightening.

a-sound b-electrical c-potential d-kinetic

48-Greenhouses allow farmers to plant crops that only grow in

a-polar climate b-warm climate

c-absence of sunlight d-absence of water.

49-When energy of wind increases, the blades of wind turbines spin more quickly.

a-kinetic b-potential c-chemical d-solar

50-In the water cycle, water, then it before falling in the form of rain.

a-freezes- evaporates

b-evaporates - condenses

c-evaporates - freezes

d-condenses - evaporates

51-Some types of lamps in streets depend directly on as a renewable energy resource in order to do its function.

a-sunlight

b-petrol

c-coal

d-natural gas

Put true or false:

- 1-You need gasoline to move a bicycle. ()
- 2-A solar panel consists of one small solar cell. ()
- 3-Most of energy chains start with the moon. ()
- 4-We cannot create a new form of energy, and also we cannot destroy an existed form of energy. ()
- 5-There is a stored chemical energy inside the food we eat. ()
- 6-Machines make our life easier. ()
- 7-We have to conserve all forms of fuel. ()
- 8-Energy may be destroyed inside different devices. ()
- 9-The movement of a generator in electric power station produces potential energy. ()
- 10-The amount of oil on Earth is limited. ()
- 11-The Mars rover curiosity converts sound energy into kinetic energy. ()
- 12-Mars rover curiosity can be operated from a distance. ()
- 13-The stored energy in batteries is the light energy. ()
- 14-the electric lamp is the primary source of most energies on the earth. ()
- 15-The electric iron converts electrical energy into thermal energy. ()
- 16-Energy that is produced from burning gasoline, cannot be used to move a car. ()
- 17-Burning of all forms of fuel produces thermal energy. ()
- 18-Coal can be used to produce electrical energy. ()
- 19-The nonrenewable resources of energy include coal, gasoline and water.()
- 20-When fuel is burned, it produces thermal energy. ()
- 21-Turbines convert kinetic energy into electrical energy. ()
- 22-The electrical energy produced from electric power station can be used in houses, streets and factories. ()
- 23-We have to reduce the usage of the sun as a source of energy. ()
- 24-Chemical energy is the energy that is stored in food and battery. ()
- 25-Electricity can be generated from water. ()
- 26-When a piece of coal is burned, thermal energy is produced. ()



Prepared by Ms. Fatma Fathy Saad
فيديو شرح الدرس موجود علي قناتنا علي اليوتيوب
Manaheg YouTube Channel
WhatsApp: 01274112011



- 27-Charcoal is formed from decomposition of remains of ancient plants. ()
- 28-Biofuels are from nonrenewable resources of energy. ()
- 29-A solar panel consists of one small solar cell. ()
- 30-The movement of a generator in electric power station produces potential energy. ()
- 31-Turbines convert kinetic energy into electrical energy. ()
- 32-We have to reduce the usage of the sun as a source of energy. ()
- 33-The watermill convert electrical energy into kinetic energy. ()
- 34-Water is a nonrenewable resource that is used to generate hydroelectricity. ()
- 35-One of the wind turbines advantages is that it can generate electricity in any time even though the wind doesn't blow. ()

Write the scientific term of each of the following:

- 1-A device used to convert electrical energy into light energy. (.....)
- 2-Natural resources of energy, that take a short period of time to be renewed. (.....)
- 3-The energy produced from a battery. (.....)
- 4-A process in which water change into water vapor. (.....)
- 5-The liquid that stores chemical energy, and it is used to mover cars. (.....)
- 6-A fuel that is produced from remains of dead animals and plants under the Earth's surface. (.....)
- 7-It is a form of biofuel, that can be made from some types of plants such as grass and wood chips. (.....)
- 8-The matter that produces steam on heating, which is used to turn turbines in electric power station. (.....)
- 9-The energy used to play a drum. (.....)
- 10-The main source of energy on the Earth. (.....)
- 11-The form of energy that is stored in the battery of a remote controlling toy car. (.....)
- 12-The remote controlled vehicle used to explore the surface of planet Mars. (.....)



Prepared by Ms. Fatma Fathy Saad
فيديو شرح الدرس موجود علي قناتنا علي اليوتيوب
Manaheg YouTube Channel
WhatsApp: 01274112011



- 13-The input energy of television. (.....)
- 14-The wasted energy in a computer. (.....)
- 15-The output energy of the washing machine which helps it do its main function. (.....)
- 16-Energy can neither be created nor destroyed, but only converts from one form to another. (.....)
- 17-A kind of energy that is produced from the electric heater and burning coal. (.....)
- 18-The energy produced from playing guitar. (.....)
- 19-The energy stored inside the coal. (.....)
- 20-The substance produced from the remains of dead trees that buried deep in the Earth over millions of years. (.....)
- 21-the energy stored in coal. (.....)
- 22-Any substance that produces thermal energy. (.....)
- 23-Natural resources of energy, that take a short period of time to be renewed. (.....)
- 24-A natural movement of air that is resulted from the difference in temperature between cold and hot air. (.....)
- 25-A type of mirrors that is used to direct sunlight onto metal utensils to heat them and cook the food inside it. (.....)
- 26-A turbine that converts the energy of flowing or falling water into electrical energy. (.....)
- 27-A mill that is turned by water flow. (.....)
- 28-The main source of energy on the Earth. (.....)
- 29-The energy resources that include wind energy, water and solar energy. (.....)
- 30-They are used in crushing grains. (.....)
- 31-A mill that is operated by wind movement. (.....)
- 32-An equipment that is used to convert the kinetic energy of wind into electrical energy. (.....)
- 33-A type of mirrors that is used to collect and focus sunlight onto metal pots to heat them and cook the food inside. (.....)
- 34-They help famers in cold regions to plant crops which grow only in warm climate. (.....)
- 35-An equipment consists of panels made of black pipes that is used to heat water at houses. (.....)
- 36-A panel is designed to absorb the energy of the sun to generate electricity. (.....)

- 37-A natural movement of air that is resulted from the difference in temperatures between cold air and hot air. (.....)
- 38-An energy that is generated from wind turbines and is transmitted through wires to houses and factories. (.....)
- 39-A glass building that is used in cold areas to plant crops which grow in warm climate. (.....)

Give reasons for each of the following:

1-We must turn off lights that we are not needed for a while.

.....

.....

.....

2-The used amount of fossil fuels cannot be replaced as quickly as it is consumed.

.....

.....

.....

3-Biofuel is considered as a renewable fuel.

.....

.....

.....

4-Some calculators use the sunlight to be operated.

.....

.....

.....

5-When you press on the spring of soap dispenser, the soap moves upward.

.....

.....

.....

6-Coal is considered as a nonrenewable energy resources.

.....

.....

.....

7- A remote controlled toy car needs a battery to move from one place to another.

.....

.....

.....

8-Mars rover curiosity operates for a long periods of time on Mars without any need to be recharged.

.....

.....

.....

9-You feel heat when you put your hands near a lighted electric lamp.

.....

.....

.....

10-The presence of batteries inside a toy car.

.....

.....

.....

11-Thermal energy in a mobile phone is considered as a wasted energy.

.....

.....

.....

12-The electrical energy that enters the hair dryer does not come out of the hair dryer in the same form of energy.

.....

.....

.....

13-Sound energy and thermal energy are considered as a wasted energy in the blender.

.....

.....

.....

14-The fuel is very important for different means of transportation.

.....

.....

.....

15-Sometimes the fuel indicator of a car goes down.

.....

.....

.....

16-Water and wind are considered as renewable resources of energy.

.....

.....

.....
17-Coal and gasoline are considered as nonrenewable resources of energy.
.....
.....

.....
18-Smog of cars are very dangerous to human health.
.....
.....

.....
19-Farmers must decrease the use of pesticides.
.....
.....

.....
20-Wood is considered as a fuel.
.....
.....

.....
21-Fossil fuels can't be replaced soon after it is used.
.....
.....

.....
22-Increase burning of fossil fuels cause acid rain.
.....
.....

.....
23-Acid rain has a bad effect on buildings in cities.
.....
.....

.....
24-Global warming occurs due to the increase of burning coal and oil.
.....
.....

.....
25-Water and wind are considered as renewable resources of energy.
.....
.....

26-Kinetic energy of wind affects the speed of wind turbine blades rotation.

27-Sometimes the wind turbines are useless.

28-Some electrical devices have solar panels which are composed of many solar cells.

29-Kinetic energy of wind affects the speed of wind turbine blades

30-Humans used windmills and watermills from hundreds of years ago.

31-Sometimes the sun is not visible in the sky but you can feel its warmth.

What happens to:

1-The change of energy when you turn on the television.

2-The change of energy when you burn a piece of wood.



Prepared by Ms. Fatma Fathy Saad
فيديو شرح الدرس موجود علي قناتنا علي اليوتيوب
Manaheg YouTube Channel
WhatsApp: 01274112011



3-The change of energy when you shake a small bell with your hand.

.....

.....

.....

4-The car fuel indicator if the amount of gasoline in a car decreases.

.....

.....

.....

5-The car movement if fuel runs out in a car.

.....

.....

.....

6-A generator that is connected to a damaged turbine in an electric power station.

.....

.....

.....

7-The movement of turbines if the water in an electric power station is not heated.

.....

.....

.....

8-The amount of fossil fuels if people don't conserve their usage.

.....

.....

.....

9-To the Earth's temperature if we use renewable resources of energy instead of fossil fuels.

.....

.....

.....

What happens if:

1-Batteries of remote controlled car run out.

.....

.....

.....

2-Solar calculators were exposed to the sunlight.

.....

.....

.....

3-You put your hand near the lightened lamp.

.....

.....

.....

4-You use a mobile phone for a long period of time.

.....

.....

.....

5-You turn on an electric fan.

.....

.....

.....

6-The remains of dead living organisms were buried under the Earth's surface over millions of years.

.....

.....

.....

7-Decomposition of remains of sea animals under the Earth's surface.

.....

.....

.....

8-Shaking of a hand bell. (according to the change of energy)

.....

.....

.....

9-Turning and electric lamp. (according to the change of energy)

.....

.....

.....

10-You turn on TV (according to the change of energy)

.....

.....

.....

11-Wind doesn't blow in an area that contains many modern wind turbines.

.....

.....

.....

12-Sunlight falls on a solar panel

.....

.....

.....

13-Sunlight falls on a green house.

.....

.....

.....

14-The solar cells in a calculator are exposed to sunlight.

.....

.....

.....

15-The kinetic energy of a wind that is applied on the wind turbine increases.

.....

.....

.....

16-There is a difference in temperature of air around Earth.

.....

.....

.....

17-A generator that is connected to a damaged turbine in an electric power station.

.....

.....

.....

18- The water in an electric power station is not heated.

.....

.....

.....



Prepared by Ms. Fatma Fathy Saad

فيديو شرح الدرس موجود علي قناتنا علي اليوتيوب

Manaheg YouTube Channel

WhatsApp: 01274112011



Second Term

February Exam Revision



Complete the following:

- 1-In any energy chain, some of the energy is lost in the form of heat.
- 2-Wood and charcoal are examples of biofuel, while coal and oil are examples of fossil fuels.
- 3-When you ride a bicycle, the chemical energy stored in your body is converted into kinetic energy which cause the bicycle to move.
- 4-When we expose our bodies to the sun we feel warm.
- 5-The energy can be changed from one form to another.
- 6-The change of electrical energy into sound energy in the radio is an example that proves the law of conservation of energy.
- 7-The natural resources that can be replaced shortly after being used are called renewable resources of energy.
- 8-The output energy of burning coal is thermal energy, which is used to produce kinetic energy in electric power station in order to generate electrical energy.
- 9-The output energy that helps the washing machine to do its main function is kinetic energy, and this energy is considered the input energy of the hand bell.
- 10-The input energy of the toy car is chemical energy that is stored in its battery and then converted into electrical energy in its wires to operate its motor.
- 11-The generator in electric power station changes kinetic energy into electrical energy.
- 12-Remote controlled of toy cars changes chemical energy stored in its batteries into electrical energy that is turn changes into kinetic energy which is used to move the car.
- 13-When you rub your hands together, the kinetic energy is converted into thermal energy.
- 14-Coal, natural gas and oil can be used in generating electricity.



Prepared by Ms. Fatma Fathy Saad
فيديو شرح الدرس موجود علي قناتنا علي اليوتيوب
Manaheg YouTube Channel
WhatsApp: 01274112011



- 15-To operate an electric mixer we use electrical energy.
- 16-When your cell phone is out of charge, you must recharge its battery to operate again.
- 17-Some calculators can change solar energy into electrical energy by using solar cell
- 18-On planet Mars, curiosity robot is operated by using solar energy from sunlight that is converted into electrical energy used to recharge its batteries.
- 19-The unusable energy that produced from the electric lamp is thermal
- 20- Wind is a renewable energy resource.
- 21-Fossil fuel includes oil, natural gas and coal.
- 22-Global warming causes the raise of temperature on Earth and changes its climate.
- 23-In hand bell kinetic energy is converted into sound energy.
- 24-Fuel is used as a source of thermal energy.
- 25-Coal and oil are considered as non-renewable resources of energy.
- 26-We need thermal energy for cooking food and warming houses.
- 27-The Sun provides Earth with light and heat.
- 28-Energy produced from the radio which helps the device do its main function is sound energy.
- 29-The natural resources that can be replaced shortly after being used are called renewable resources of energy.
- 30-The generator in electric power station changes kinetic energy into electrical energy.
- 31-Radiant energy is used to generate electricity directly by using solar cell or indirectly as it causes blowing of wind that is used to rotate wind turbines.
- 32-A wind turbine spins faster when the kinetic energy of wind increases.
- 33-The energies that are used in modern wind turbines and old windmills are considered as renewable energy resources.
- 34-Wind turbines and windmills use the energy of wind to be powered.
- 35-When the kinetic energy of wind increases, the speed of rotation of turbine blades will increase.
- 36-Wind turbines are used to generate electrical energy.
- 37-In electric power stations, the burning coal produces thermal energy to generate electricity while wind turbines generate electricity by using the kinetic energy of wind.
- 38-Although modern wind turbines and old windmills vary in shape, they all use kinetic energy to be powered.

- 39-Greenhouses convert the radiant energy of the sun rays into **thermal** energy that allows farmers to plant crops which grow in **warm** climates.
- 40-Solar cells that are found in some calculators produce **electrical** energy that is used to recharge their **batteries**
- 41-Wind is formed due to the effect of **radiant (thermal)** energy coming from the **sun** in the form of rays.
- 42-By increasing the rotation of wind turbine blades, the wind turbine generates more **electrical** energy.
- 43-When the **kinetic** energy of wind increases, the speed of rotation of turbine blades will **increases**
- 44-Both wind and water movement produce **kinetic** energy that is used to rotate turbines to generate **electrical** energy.
- 45-We can use a device known as wind **turbine** to generate electricity in places where strong air blows.
- 46-Clouds are formed due to the **evaporation** then **condensation** of water of river and seas.
- 47-In some villages solar panels are used to generate **electrical** energy that is used to operate **farming** equipment.
- 48-WE can use solar energy in cooking by using **convergent mirrors** which collect and focus **sun rays** onto metal pots to heat them.

Choose the correct answer:

- 1-Toy cars need energy to do all the following functions, except
- a-moving forward and backward b-rotation in circle
c-moving right and left **d-rotation around the moon.**
- 2-Among forms of fuel that present in car fuel stations are
- a-gasoline and wood b-natural gas and coal
c-wood and coal **d-gasoline and natural gas**
- 3-All of the following are examples of renewable energy resources, except
- a-fossil fuel** b-waterfalls c-wind d-sunlight
- 4-The input energy when using the hair dryer is the energy.
- a-Electrical** b-potential c- kinetic d-thermal.



Prepared by Ms. Fatma Fathy Saad
فيديو شرح الدرس موجود علي قناتنا علي اليوتيوب
Manaheg YouTube Channel
WhatsApp: 01274112011



5-Fossil fuels needto be formed under the Earth's surface.

a-five years

b-ten years

c-hundreds of years

d-millions of years

6-The steps of forming fossil fuel, don't include of the remains of the living organisms.

a-decaying

b-cooling

c-burying

d-heating

7-Electric wires are made of

a-copper

b-carbon

c-wood

d-glass

8-All the following are forms of fuel, except

a-wood

b-natural gas

c-gasoline

d-glass

9-The sun provides us withand

a-sound – heat

b-light – electricity

c-sound – light

d-heat – light

10-All the following are renewable energy resources, except

a-waterfalls

b- coals

c- the Sun

d- wind

11-Both hair dryer and electrical water kettle produce Energy

a-chemical

b-thermal

c-light

d-potential

12-Some electrical devices need energy to be recharged

a-electrical

b- thermal

c-potential

d-sound

13-When you use the hand bell, the energy changes into sound energy.

a-light

b-thermal

c-kinetic

d-electrical

14-Extreme heat and pressure under the Earth's surface has an important role in forming

a-wood

b-wind

c-fossil fuel

d-biofuel

15-Oil is a non-renewable energy resource that is used inside a

a-flash light

b-car engine

c-electric fan

d-washing machine

16-It takes several for a spacecraft to travel from Earth to Mars.

a-seconds

b-minutes

c-days

d-months.

17-You feel warm when you rub your hands together, because energy

a-thermal

b-light

c-electrical

d-sound

18-Sound and energies are from output energies when operating the mobile phone.

a-electrical

b-potential

c-chemical

d-light

19-We can use the energy obtained from burning of wood directly in all of the following situations, except

- a-warming houses **b-operating television**
c-cooking food d-boiling water

20-Some kinetic energy is converted into energy due to friction of bike's tire with the road.

- a-light b-electrical c-potential **d-thermal**

21-Inside the electric power station, heating of..... produce steam.

- a- turbines b-generators **c-water** d-fuel

22-While playing guitar, the energy changes into sound energy.

- a-kinetic** b-light c-chemical d-potential

23-The output energy when playing drums is the energy.

- a-chemical b-light **c- sound** d-potential

24-All the following are forms of fossil fuel, except.....

- a-water** b-coal c-natural gas d-oil

25-Which of the following is a renewable energy resources?

- a-running bicycle b-running car
c-running water d-running person

26-Curiosity rover is designed to explore

- a-Earth planet **b-Mars planet** c-the sun d-the moon

27-All the following factors play an important role in the formation of fossil fuel, except.....

- a-extreme pressure b-extreme heat
c-the moon light d-rocks and sediment.

28-To move a car, the fuel must be The car engine at first.

- a-freeze inside b-Cooled inside
c-burned inside d-removed from

29-By rubbing hands energy is changed into thermal energy.

- a-chemical **b-kinetic** c-sound d-potential

30-..... is a type of biofuel which is made of wood.

- a-Coal b-Oil **c-Charcoal** d-Natural gas

31-..... is the main source of energy on the Earth's surface.

- a-Oil b-gasoline **c-The sun** d-The moon

32-The output energy in the Mars exploring vehicle is energy.

- a-electrical b-light **c-kinetic** d-solar

33-The energy source of a toy car is

a-engine b-wires **c-battery** d-wheels

34-The output energy when playing drums is the energy.

a-chemical b-light **c-sound** d-potential

35-All of the following are examples of renewable energy resources, except

a-fossil fuel b-waterfalls c-wind d-sunlight

36-Water flows through turbines in dams to generate energy.

a-electrical b-potential c-solar d-light

37-The sun provides us withand

a-sound – heat b-light – electricity

c-sound – light **d-heat – light**

38-All the following are renewable energy resources, except

a-waterfalls **b- coals** c- the Sun d- wind

39-Using convergent sheets in cooking food is one of the benefits of using the solar energy.

a-paper b-plastic **c-mirror** d-wooden

40-River water evaporates by the help of heat produced from

a-kettles **b-the Sun** c-electric heaters d-electric iron

41-Inside the electric power station, heating of..... produce steam.

a- turbines b-generators **c-water** d-fuel

42-When the wind turbine blades rotate, this causes wind turbines to rotate and generating energy

a-electrical b-solar c-chemical d-potential

43-Which of the following is a renewable energy resources?

a-running bicycle b-running car

c-running water d-running person

44-The change of energy in an is opposite to the change of energy in a wind turbine.

a-electrical bell b-electric heater

c-electric iron **d- electric fan**

45-..... is the main source of energy on the Earth's surface.

a-Oil b-gasoline **c-The sun** d-The moon

46-All of the following are renewable energy resources except

a-fossil fuel b-waterfalls c-wind d-sunlight

47-Solar panel use solar energy to generate energy which is used in lightening.

a-sound **b-electrical** c-potential d-kinetic

48-Greenhouses allow farmers to plant crops that only grow in

a-polar climate

b-warm climate

c-absence of sunlight

49-When energy of wind increases, the blades of wind turbines spin more quickly.

a-kinetic

b-potential

c-chemical

d-solar

50-In the water cycle, water, then it before falling in the form of rain.

a-freezes- evaporates

b-evaporates - condenses

c-evaporates - freezes

d-condenses - evaporates

51-Some types of lamps in streets depend directly on as a renewable energy resource in order to do its function.

a-sunlight

b-petrol

c-coal

d-natural gas

Put true or false:

1-You need gasoline to move a bicycle. (X)

2-A solar panel consists of one small solar cell. (X)

3-Most of energy chains start with the moon. (X)

4-We cannot create a new form of energy, and also we cannot destroy an existed form of energy. (✓)

5-There is a stored chemical energy inside the food we eat. (✓)

6-Machines make our life easier. (✓)

7-We have to conserve all forms of fuel. (✓)

8-Energy may be destroyed inside different devices. (X)

9-The movement of a generator in electric power station produces potential energy. (X)

10-The amount of oil on Earth is limited. (✓)

11-The Mars rover curiosity converts sound energy into kinetic energy. (X)

12-Mars rover curiosity can be operated from a distance. (✓)

13-The stored energy in batteries is the light energy. (X)

14-the electric lamp is the primary source of most energies on the earth. (X)

15-The electric iron converts electrical energy into thermal energy. (✓)



Prepared by Ms. Fatma Fathy Saad

فيديو شرح الدرس موجود علي قناتنا علي اليوتيوب

Manaheg YouTube Channel

WhatsApp: 01274112011



- 16-Energy that is produced from burning gasoline, **cannot** be used to move a car. (X)
- 17-Burning of all forms of fuel produces thermal energy. (✓)
- 18-Coal can be used to produce electrical energy. (✓)
- 19-The nonrenewable resources of energy include coal, gasoline and **water**(X)
- 20-When fuel is burned, it produces thermal energy. (✓)
- 21-**Turbines** convert kinetic energy into electrical energy. (X)
- 22-The electrical energy produced from electric power station can be used in houses, streets and factories. (✓)
- 23-We have to **reduce** the usage of the sun as a source of energy. (X)
- 24-Chemical energy is the energy that is stored in food and battery. (✓)
- 25-Electricity can be generated from water. (✓)
- 26-When a piece of coal is burned, thermal energy is produced. (✓)
- 27-**Charcoal** is formed from decomposition of remains of ancient plants. (X)
- 28-Biofuels are from **nonrenewable** resources of energy. (X)
- 29-A solar panel consists of **one** small solar cell. (X)
- 30-The movement of a generator in electric power station produces **potential** energy. (X)
- 31-Turbines convert kinetic energy into electrical energy. (✓)
- 32-We have to **reduce the usage** of the sun as a source of energy. (X)
- 33-The watermill convert **electrical** energy into **kinetic** energy. (X)
- 34-Water is a **nonrenewable** resource that is used to generate hydroelectricity. (X)
- 35-One of the wind turbines advantages is that it can generate electricity in any time even though the wind **doesn't blow**. (X)

Write the scientific term of each of the following:

- 1-A device used to convert electrical energy into light energy. (**electric lamp**)
- 2-Natural resources of energy, that take a short period of time to be renewed. (**renewable resources**)
- 3-The energy produced from a battery. (**electrical energy**)
- 4-A process in which water change into water vapor. (**evaporation**)



Prepared by Ms. Fatma Fathy Saad
فيديو شرح الدرس موجود علي قناتنا علي اليوتيوب
Manaheg YouTube Channel
WhatsApp: 01274112011



5-The liquid that stores chemical energy, and it is used to mover cars.

([gasoline](#))

6-A fuel that is produced from remains of dead animals and plants under the Earth's surface. ([Fossil Fuels](#))

7-It is a form of biofuel, that can be made from some types of plants such as grass and wood chips. ([Liquid Fuels](#))

8-The matter that produces steam on heating, which is used to turn turbines in electric power station. ([water](#))

9-The energy used to play a drum. ([kinetic energy](#))

10-The main source of energy on the Earth. ([The sun](#))

11-The form of energy that is stored in the battery of a remote controlling toy car. ([chemical energy](#))

12-The remote controlled vehicle used to explore the surface of planet Mars. ([Mars curiosity rover](#))

13-The input energy of television. ([Electrical energy](#))

14-The wasted energy in a computer. ([thermal energy](#))

15-The output energy of the washing machine which helps it do its main function. ([kinetic energy](#))

16-Energy can neither be created nor destroyed, but only converts from one form to another. ([Law of conservation of energy](#))

17-A kind of energy that is produced from the electric heater and burning coal. ([thermal energy](#))

18-The energy produced from playing guitar. ([sound energy](#))

19-The energy stored inside the coal. ([chemical energy](#))

20-The substance produced from the remains of dead trees that buried deep in the Earth over millions of years. ([coal](#))

21-the energy stored in coal. ([chemical energy](#))

22-Any substance that produces thermal energy. ([fuel](#))

23-Natural resources of energy, that take a short period of time to be renewed. ([renewable natural resources](#))

24-A natural movement of air that is resulted from the difference in temperature between cold and hot air. ([wind](#))

25-A type of mirrors that is used to direct sunlight onto metal utensils to heat them and cook the food inside it. ([convergent mirrors](#))

26-A turbine that converts the energy of flowing or falling water into electrical energy. ([water turbine](#))

27-A mill that is turned by water flow. ([watermill](#))

28-The main source of energy on the Earth. **(The sun)**

29-The energy resources that include wind energy, water and solar energy.

(Renewable energy resources)

30-They are used in crushing grains. **(watermill or windmill)**

31-A mill that is operated by wind movement. **(windmill)**

32-An equipment that is used to convert the kinetic energy of wind into electrical energy. **(Wind turbines)**

33-A type of mirrors that is used to collect and focus sunlight onto metal pots to heat them and cook the food inside. **(convergent mirror)**

34-They help famers in cold regions to plant crops which grow only in warm climate. **(Greenhouse)**

35-An equipment consists of panels made of black pipes that is used to heat water at houses. **(Solar water heaters)**

36-A panel is designed to absorb

(Solar panel)

37-A natural movement of air that is resulted from the difference in temperatures between cold air and hot air. **(wind)**

38-An energy that is generated from wind turbines and is transmitted through wires to houses and factories. **(electrical energy)**

39-A glass building that is used in cold areas to plant crops which grow in warm climate. **(greenhouse)**

Give reasons for each of the following:

1-We must turn off lights that we are not needed for a while.

To conserve the electricity.

2-The used amount of fossil fuels cannot be replaced as quickly as it is consumed.

Because fossil fuel is formed over millions of years.

3-Biofuel is considered as a renewable fuel.

Because it can be replaced shortly after it is used.

4-Some calculators use the sunlight to be operated.

Because solar panels absorb solar energy and convert it into electrical energy which calculators use to be operated.



Prepared by Ms. Fatma Fathy Saad
فيديو شرح الدرس موجود علي قناتنا علي اليوتيوب
Manaheg YouTube Channel
WhatsApp: 01274112011



**5-When you press on the spring of soap dispenser, the soap moves upward.
Because the potential energy stored in the spring changes into kinetic energy that moves the soap upward.**

**6-Coal is considered as a nonrenewable energy resources.
Because it is used at a rate faster than it can be renewed.**

7- A remote controlled toy car needs a battery to move from one place to another.

Because chemical energy stored in battery is converted into electrical energy that changes into kinetic energy that makes the car moves.

8-Mars rover curiosity operates for a long periods of time on Mars without any need to be recharged.

Due to the presence of solar panels that use sunlight to recharge its batteries.

9-You feel heat when you put your hands near a lighted electric lamp.

Because some of the electrical energy is converted into thermal energy.

10-The presence of batteries inside a toy car.

Because battery is the source of energy where the chemical energy is converted into electrical energy to operate the toy car.

11-Thermal energy in a mobile phone is considered as a wasted energy.

Because it does not help the mobile phone to do its main function.

12-The electrical energy that enters the hair dryer does not come out of the hair dryer in the same form of energy.

Because it is converted into kinetic, thermal and sound energies.

13-Sound energy and thermal energy are considered as a wasted energy in the blender.

Because they don't help the blender to do its main function.

14-The fuel is very important for different means of transportation.

Because fuel is burned inside the engines to produce thermal energy that is changed into kinetic energy which causes the different means of transportation to move.

15-Sometimes the fuel indicator of a car goes down.

Because the fuel in the car tank runs out.

16-Water and wind are considered as renewable resources of energy.

Because they can be replaced shortly after being used.

17-Coal and gasoline are considered as nonrenewable resources of energy.

Because they are used at a rate faster that they can be used.

18-Smog of cars are very dangerous to human health.

Because the smog of cars causes irritation of human's eyes and lungs.

19-Farmers must decrease the use of pesticides.

Because pesticides cause the pollution of soil and water.

20-Wood is considered as a fuel.

Because wood produces thermal energy when it is burned.

21-Fossil fuels can't be replaced soon after it is used.

Because fossil fuels are formed over millions of years.

22-Increase burning of fossil fuels cause acid rain.

Because burning of fossil fuel produces carbon dioxide gas which combines with water in air forming acid rain.

23-Acid rain has a bad effect on buildings in cities.

Because acid rain causes dissolving of some rocks including the rocks used for building.

24-Global warming occurs due to the increase of burning coal and oil.

Because burning coal and oil produces carbon dioxide gas which forms a layer in atmosphere that traps heat on Earth causing rise in Earth's temperature that causes global warming.

25-The used amount of fossil fuels cannot be replaced as quickly as it is consumed.

Because fossil fuel is formed over millions of years.

26-Biofuel is considered as a renewable fuel.

Because it can be replaced shortly after it is used.

27- A remote controlled toy car needs a battery to move from one place to another.

Because chemical energy stored in battery is converted into electrical energy that changes into kinetic energy that makes the car moves.

28-Sometimes the fuel indicator of a car goes down.

Because the fuel in the car tank runs out.

29-Water and wind are considered as renewable resources of energy.

Because they can be replaced shortly after being used.

30-Coal and gasoline are considered as nonrenewable resources of energy.

Because they are used at a rate faster that they can be used.

31-Smog of cars are very dangerous to human health.

Because the smog of cars causes irritation of human's eyes and lungs.

What happens to:

1-The change of energy when you turn on the television.

Electric energy changed into light and sound energies.

2-The change of energy when you burn a piece of wood.

Chemical energy stored in wood changes into thermal energy.

3-The change of energy when you shake a small bell with your hand.

Kinetic energy is changed into sound energy.

4-The car fuel indicator if the amount of gasoline in a car decreases.

The car fuel indicator will go down.

5-The car movement if fuel runs out in a car.

The car movement decreases gradually until it stops.

6-A generator that is connected to a damaged turbine in an electric power station.

Turbines cannot produce kinetic energy, so the generator will not turn and don't generate electricity.

7-The movement of turbines if the water in an electric power station is not heated.

Water will not produce steam, so the turbine will not move and will not produce kinetic energy.

8-The amount of fossil fuels if people don't conserve their usage.

Fossil fuels will run out on the Earth.

9-To the Earth's temperature if we use renewable resources of energy instead of fossil fuels.

The Earth's temperature will not increase.

What happens if:

1-Batteries of remote controlled car run out.

The car will not move, so we can recharge its batteries by connecting toy car to a nearby charger or replacing old batteries with new ones.

2-Solar calculators were exposed to the sunlight.

Solar energy is converted into electrical energy that operate them.

3-You put your hand near the lightened lamp.

You will feel warm, because some electrical energy is converted into thermal energy.

4-You use a mobile phone for a long period of time.

Some energy is wasted as thermal energy.

5-You turn on an electric fan.

The electrical energy is converted into kinetic energy which do the main function of fan and sound energy as wasted energy.

6-The remains of dead living organisms were buried under the Earth's surface over millions of years.

They are converted into fossil fuels.

7-Decomposition of remains of sea animals under the Earth's surface.

They will form oil and natural gas.

8-Shaking of a hand bell. (according to the change of energy)

The kinetic energy changes into sound energy.

9-Turning and electric lamp. (according to the change of energy)

The electrical energy changes into light and thermal energies.

10-You turn on TV (according to the change of energy)

The electrical energy changes into light and sound energies.

11-Wind doesn't blow in an area that contains many modern wind turbines.

The blades of wind turbines don't move and also don't generate electricity.

12-Sunlight falls on a solar panel.

The solar energy of the sun converted into electrical energy.

13-Sunlight falls on a green house.

The greenhouse absorbs the radiant energy from the Sun and convert it into thermal energy.

14-The solar cells in a calculator are exposed to sunlight.

The solar cells absorb solar energy and convert it into electrical energy that is used to charge the battery of calculator.

15-The kinetic energy of a wind that is applied on the wind turbine increases.

Its blades rotate faster and generates more electricity.

16-There is a difference in temperature of air around Earth.

It causes the movement of air and wind blowing.

17-A generator that is connected to a damaged turbine in an electric power station.

Turbines cannot produce kinetic energy, so the generator will not turn and don't generate electricity.

18- the water in an electric power station is not heated.

Water will not produce steam, so the turbine will not move and will not produce kinetic energy.

حمل الآن

مجاناً وحصرياً

المراجعة رقم (5)

اختبار شهر مارس



Give reason to the following

- 1- A remote-controlled toy car needs a battery to move from one place to another.

Because the chemical energy stored in battery is converted into electrical energy that changes into kinetic energy and moves the car

- 2- Some calculators use sunlight to operate.

Because the solar energy is converted into electrical energy which is used to operate calculators

- 3- Mars rover curiosity operates for a long period of time on Mars without any need to be charged.

Due to the presence of solar panels that use sunlight to recharge its batteries.

- 4- There is energy change when you press the spring of a soap dispenser.

Because the potential energy stored in the spring is changed into kinetic energy that moves the soap upward

- 5- When you rub your hands together, you feel warm.

Because the kinetic energy is converted into thermal energy

- 6- Not all the energy that enters the energy chain completely reaches the device.

Because some of the energy is wasted in the form of heat

- 7- You feel heat when you put your hands near a lighted electric lamp.

Because some of the electrical energy is converted into thermal energy

- 8- The presence of batteries inside a toy car

Because batteries are the source of energy where chemical energy is converted to electrical energy that is converted to kinetic energy to move the car

- 9- Thermal energy in a mobile phone is considered a waste of energy.

Because it does not help the mobile phone to do its function

- 10- The electrical energy that enters the hair dryer does not come out of the hair dryer in the same form of energy.

Because it is converted into kinetic, thermal, and sound energies.



- 11- Sound energy and thermal energy are considered as wasted energy in the blender.
Because they do not help the blender to do its main function
- 12- Fuel is very important for different means of transportation.
Because it is burned inside the engines to produce thermal energy that is changed to kinetic energy which allows different means of transportation to move
- 13- Sometimes the fuel indicator of a car goes down.
Because the fuel in the car tank runs out
- 14- Gasoline is burned inside a car engine.
To produce thermal energy which changes into kinetic energy that causes the car to move.
- 15- Water and wind are considered as renewable resources of energy.
Because they can be replaced after a short period of time
- 16- Coal and gasoline are considered as nonrenewable resources of energy.
Because they are used faster than they can be renewed
- 17- Using wood of trees as a fuel has negative effects on the environment
Because continuous cutting of trees leads to deforestation
- 18- We must turn off lights that we do not need.
To conserve electricity
- 19- Generators are important in electric power stations.
Because generators convert kinetic energy into electrical energy
- 20- Farmers must decrease the use of pesticides.
Because pesticides cause the pollution of soil and water.
- 21- Increase the burning of fossil fuel causes acid rain.
Because burning fossil fuel produces carbon dioxide gas which combines with water in air forming acid rain.
- 22- Global warming occurs due to the increase of burning coal and oil.
Because burning coal and oil produces carbon dioxide gas which forms a layer in atmosphere that traps heat on Earth causing rise in Earth's temperature that causes global warming.



- 23- Acid rain has a bad effect on buildings in cities.
Because acid rain causes dissolving of some rocks including the rocks used for building.
- 24- Fossil fuels cannot be replaced as quickly as they are used.
Because fossil fuels are formed over millions of years.
- 25- To keep the air clean, we must replace fossil fuels with renewable resources of energy.
Because when fossil fuels are burned, they release gases that cause air pollution.
- 26- Increasing the amount of carbon dioxide gas in the air could harm the environment.
Because it causes global warming and acid rain.
- 27- Humans used windmills and watermills from hundreds of years ago.
Because they helped them to crush grain to make flour.
- 28- Sometimes the Sun is not visible in the sky but you can feel its warmth.
Because the atmosphere, land and water of Earth absorb the thermal energy of the Sun which causes increasing in the Earth's temperature.
- 29- Farmers use greenhouses to plant crops which grow only in warm climate.
Because greenhouses absorb radiant energy coming from the Sun and convert it into thermal energy that warms the inside of greenhouses.
- 30- Some electrical devices have solar panels which are composed of many solar cells.
To absorb the solar energy coming from the Sun and convert it into electrical energy.
- 31- Kinetic energy of wind affects the speed of wind turbine blades rotation.
Because by increasing the kinetic energy of wind, the blades rotate faster and wind turbine generates more electricity.
- 32- Sometimes the wind turbines are useless.
Because sometimes the wind doesn't blow, so their blades don't move, so wind turbines don't generate electricity.



What happens?

- 1- Batteries of remote-controlled toy car ran out.
The car will not move, and we should replace the batteries or recharge them.
- 2- Solar calculators were exposed to sunlight.
Solar energy is converted into electrical energy that operates the calculator.
- 3- Mars rover curiosity did not get any sunlight on Mars surface.
It cannot be operated because it depends on solar energy to charge its batteries.
- 4- The change of energy when you turn on the television.
The electrical energy is converted to sound and light energy
- 5- The change of energy when you burn a piece of wood.
The chemical energy is changed into thermal and light energy.
- 6- The change of energy when you shake a small bell with your hand.
The kinetic energy is changed to sound energy.
- 7- You put your hands near a lighted lamp.
You will feel warm because some of the electrical energy is changed into thermal energy.
- 8- You use a mobile phone for a long time.
Some of the energy is wasted in the form of thermal energy.
- 9- You turn on an electric fan.
Electrical energy is converted into kinetic, sound, and thermal energies.
- 10- The car fuel indicator if the amount of gasoline in a car decreases
The fuel indicator will go down.
- 11- The car movement if fuel runs out in a car.
The car movement will decrease until it stops.
- 12- People increase using the wood of trees as a source of fuel.
It leads to deforestation that causes negative effects on the environment.



13- The remains of dead living organisms were buried under the Earth over millions of years.

They are converted into fossil fuels.

14- Decomposition of remains of sea animals under the Earth's surface

They will form oil and natural gas.

15- A generator that is connected to a damaged turbine in an electric power station.

Turbines cannot produce kinetic energy so the generator will not turn and do not generate electricity.

16- The movement of turbine if the water in an electric power station is not heated.

Water will not produce steam so the turbine will not move or produce kinetic energy.

17- If pesticides mix with water of canals and rivers.

It causes the pollution of water and soil.

18- If factories decrease their use of chemicals.

The pollution of air, water and soil will decrease.

19- If acid rain falls on buildings for a long period of time.

It causes dissolving of the rocks used for building.

20- If people decrease burning fossil fuels.

The amount of carbon dioxide gas in air will decrease.

21- To the amount of fossil fuels if people don't conserve their usage.

Fossil fuel will run out on the Earth.

22- To the Earth's temperature if we use renewable resources of energy instead of fossil fuels.

The Earth's temperature will not increase.

23- Wind doesn't blow in an area that contains many modern wind turbines.

The blades of wind turbine don't move and also don't generate electricity.



24- Sunlight falls on solar panels.

The solar energy of the Sun is converted into electrical energy.

25- Sunlight falls on a greenhouse.

The greenhouse absorbs the radiant energy from the Sun and converts it into thermal energy.

26- The solar cells in a calculator are exposed to sunlight.

The solar cells absorb solar energy coming from the Sun and convert it into electrical energy that is used to charge the battery of calculator.

27- The kinetic energy of a wind that is applied on the wind turbine increases.

The blades of wind turbine rotate faster and generate more electricity.



كيفية طباعة صفحات معينة من ملف معين مثلا ازاي نطبع الصفحات من صفحة 4 الى صفحة 9

